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Development of a Patient-Centred Care Self-Reflection Tool for Dentists

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Development of a Patient-Centred Care Self-Reflection Tool for Dentists

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Doctor of Philosophy

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Abstract

Background: Patient-centred care (PCC) has been linked to many positive outcomes in medicine. Dentists currently have no available tool for practicing this approach as part of a daily routine in a dental setting. The latest UK General Dental Council (GDC) standards for dental teams has amplified the need for such a tool (GDC, 2013).

Aim: The overall aim of this thesis is to develop and validate a tool for dentists in order to encourage them to practice PCC in dental settings.

Methods: This research employs a mixed method research design. This thesis is divided into three studies. Study 1 includes semi-structured interviews that were conducted with 20 practicing dentists who had clinical teaching responsibilities at King's College London. These interviews explored their views and opinions on PCC in general as well as on a published model of PCC and how applicable this model would be in a dental setting. Study 2 builds on study 1 findings by examining the ability of dental students to assess the communication skills of another dentist. This cross-sectional survey exposed students to a stage consultation via a YouTube video clip and then asked them to use the tool to evaluate the performance of the dentist in the clip. Study 3 entails validation of the newly developed PCC self-reflection tool by assessing its face, content, and criterion validity and test-retest reliability. To determine content validity, experienced dentists who were involved in education and practice evaluated the items based on relevance, clarity and representativeness of the construct as well as the ease of response. The criterion validity was determined in parallel with study 2 using a survey. For the test-retest reliability part, the modified tool was assessed twice within a 10-day period to rate a dental consultation clip by dental students (N=25).

Results: The interview analysis highlighted five themes: understanding PCC, the role and influence of patients on the delivery of PCC, the role and influence of dentists on the delivery of PCC, the importance of context and dentists' views on a hierarchy of PCC. Each of these themes included a number of sub-themes that covered the different issues identified via interview transcript analysis. The themes showed that dentists have a basic and simplistic understanding of the concept of PCC. Dentists identified a number of patient, dentist and contextrelated barriers that could hinder the adoption of PCC. Interviewees thought the hierarchy of PCC they discussed would be useful to aid understanding of PCC but more so for less experienced dentists and dental students. The analysis of the cross-sectional survey study revealed a broad understanding of the basic functions of the communication process, although students' judgments of the quality of such communication was exaggerated. The

development and validation of the tool, led to a final version of the tool containing six items. The tool showed good validity and reliability.

Conclusion: A new, practical, PCC self-reflection tool was developed for dentists based on a review of the literature and interviews with dentists. The tool exhibits good content and criterion validity as well as acceptable test-retest reliability. Dentists may use this tool in dental settings to become more aware of PCC as a concept by focusing on two specific aspects: information provision and choice giving.

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Abbreviations

AHRQ	Agency for Healthcare Research and Quality
CAHPS	Consumer Assessment of Health Plans Survey
CCM	Consultation Care Measure
CPD	Continuing Professional Development
GDC	General Dental Council
GDP	General Dental Practitioner
GPSA	General Practice Assessment Survey
HCP	Health Care Professional
IOM	Institute of Medicine
KCL	King's College London
Lv.	Level (as in the PCC hierarchy)
NHS	National Health Service
NICE	National Institute for Health and Clinical Excellence
PCAS	Primary Care Assessment Survey
PCAT	Primary Care Assessment Tool
PCC	Patient-Centred Care
PDIS	Patient-Doctor Interaction Scale
PICS	Patient Perceived Involvement in Care Scale
PPPC	Patient Perception of Patient-Centeredness
PRA	Patient reactions assessment
RCT	Randomised Controlled Trial

Chapter 1: Introduction

1.1 Motivation for the research

The main motivations for this research are the importance of moving towards a patient-centred approach in dentistry and the rarity of studies conducted on this concept in dental settings (Mills et al., 2014, Nestel and Betson, 1999, Scambler et al., 2016). In addition to this rarity of research, there is significant misuse of the term 'patient-centred care' (PCC) in the relevant literature that commonly occurs through the identification of any type of quality care that accounts for the patient as 'patient-centred care'. Such struggle denotes a lack of understanding of the concept itself among dentists and researchers alike, whereby PCC is reduced to a synonym for 'being nice to the patient' (Scambler et al., 2014, pg.7).

At the same time, current policy is calling for more patient involvement and heightened consideration of patients' preferences; a typical example of an institution advocating this in the UK is the National Institute for Health and Clinical Excellence¹ (NICE, 2012). In addition to policies and regulations that suggest the importance and necessity of a more patient-centred approach in dental settings, there is a growing evidence base that supports the positive outcomes of adopting this approach (Sherman and Cramer, 2005, Raja et al., 2015, Marchini, 2014, Apelian et al., 2014). Although it is encouraging that some dentistry work is addressing PCC, it is interesting that most of these studies have mainly focused on the empathy aspect. This picture contrasts with the medical and nursing fields, which have accumulated large bodies of evidence from studies on the different aspects and dimensions of PCC using a variety of methods and samples (Robinson et al., 2008, Rathert et al., 2013, Mead and Bower, 2000, Stewart, 2003).

The advocacy and encouragement of the PCC process in dentistry, along with the observation that current research on the topic appears unclear in explaining PCC and how it might be practiced, has led to the conception of the topic explored in this thesis. Thus, the main aim of this thesis is to develop and validate a PCC

¹ Now called National Institute for Health and Care Excellence (as of 2013)

tool for dentists to support dental teams in their delivery of PCC in the dental surgery.

1.2 Overview of the chapters

The thesis contains the following seven chapters:

- Chapter 1- Introduction:

This initial chapter provides an overview of the thesis and presents its layout and a brief description of each chapter in the thesis.

- Chapter 2- Literature review:

This chapter discusses the development and definition of the concept of PCC, first in medical and nursing settings and then in dentistry, and discusses some of the most-cited models of PCC. Furthermore, it describes the different potential outcomes of adopting this approach. The chapter concludes with the chosen model for defining PCC in this thesis and justifies this model selection. This section concludes with the thesis aims and objectives as well as the precise research questions that are posed and answered in the thesis.

- Chapter 3- Methods:

This chapter provides a brief description of the study design and the underlying paradigm for each of the empirical studies of the thesis. It broadly describes the methods used for each study, and these descriptions form the basis for the detailed methods that appear under each empirical study chapter that follows. This section also establishes the chronology of the work reported herein in order to illustrate how the different studies factor into the various chapters.

- Chapter 4- The applicability of the Scambler and Asimakopoulou (2014) hierarchy in a dental setting:

This chapter examines dentists' opinions on the applicability of the Scambler and Asimakopoulou (2014) hierarchy in a dental setting (Scambler and Asimakopoulou, 2014) because the concept of PCC has not been studied extensively in dentistry and this hierarchy of PCC is new and has not been employed or analysed. It involved conducting semi-structured interviews in which respondents could elaborate and discuss their opinions and views in detail. Dentists were presented with the Scambler and Asimakopoulou (2014) hierarchy and asked to share their opinions on its applicability in a dental

setting as well as on the definition of PCC and how they practice it. Analysis of these interviews using a thematic analysis approach resulted in 11 subthemes that were grouped under five main themes: *understanding PCC*; *the role and influence of patients*; *the role and influence of dentists*; *the importance of context*; and *dentists' perspectives on the hierarchy of PCC*. These interviews suggest that a practical model of PCC grounded in information and choice giving to patients may well be applicable in dental settings. Respondents considered the ability to communicate effectively and awareness of the different functions of communication to be necessary here. Dental practitioners believed that they were skilled at this, but that less experienced dentists might benefit from a tool that would aid them in pursuing more PCC. At the end of this study, the research follows two directions: first, assessing the communication skills of younger, less experienced dentists (reported in Chapter 5), and second, the development of a tool designed to support PCC in practice (reported in Chapter 6).

- Chapter 5- Examination of dental students' assessment of communication skills using a Medical Communication Competence Scale

The interviews analysed in Chapter 4 highlight that dentists with less experience than the teaching and practicing sample interviewed for this study might need help with their efforts to be patient centred. Given this view and the importance of effective communication in the delivery of PCC, this chapter reports on a cross-sectional survey study that was carried out with a sample of dental students. This study used the medical communication competence scale, a validated scale that Cegala et al. (1998) have developed, to gauge dental students' ability to assess the communication skills of another dentist. This indicated the areas that students can assess proficiently as well as those that they might have difficulty evaluating. This was determined by comparing students' scores with those obtained by a panel of communication-trained researchers after the two samples watched the same clip depicting an assessment in dental practice. The study concluded that whilst dental students seemed to be less stringent than the researcher panel in judging the quality of communication, they were not dissimilar from the researchers in detecting the broad functions of communication. As such, it was deemed that

they were an appropriate sample to work with in developing a tool to assess aspects of PCC.

- Chapter 6- Development and initial validation of a self-reflection tool for dentists:

The Scambler and Asimakopoulou (2014) PCC hierarchy and the findings from the previous studies were used to design a short self-reflection tool for dentists with the underlying aim of supporting them in becoming more aware of PCC. This chapter describes the development process of this tool, which included item generation, initial testing of the wording and final refinement of the tool. This chapter also describes the initial validation of the developed tool, which involved the assessment of its content validity, face validity and test-retest reliability. Finally, the students' performance of using the tool to assess PCC was compared with that of a sample of researchers to examine the criterion validity of the tool. The structure of this chapter differs from the rest of the empirical chapters in this thesis because it sequentially reports a series of reliability and validity assessments to which the newly developed PCC tool was exposed.

- Chapter 7- Discussion and conclusion:

This chapter discusses the contribution this thesis makes to current knowledge by outlining the strengths, weaknesses and possible uses of a newly developed PCC tool and the limitations of the work presented here. It also offers suggestions for future research.

Chapter 2: Literature Review

2.1 Introduction

This thesis concerns the concept and practice of PCC and how it can be applied in dental settings. In order to better comprehend potential applications, a broad understanding of the definition of PCC in the medical and dental literature is necessary, along with an exploration of the current use of the concept in the dental field. To this end, a comprehensive narrative literature review has been conducted, and this chapter presents the results. The chapter starts with an overview of the origins of PCC. It notes the growth in popularity of the term and the emergence of policy requirements for the practice of PCC alongside the literature on the benefits of PCC. Next, it describes and critically evaluates key models that incorporate the components of PCC, building on the way in which the medical and dental literature has defined and addressed the term. The chapter finally presents the different tools that are currently used to measure the various dimensions of PCC. Critical analysis highlights potential issues with the current models and measures of PCC as well as the difficulty of applying these models and measures to dental settings. Concerns are particularly arisen from differences in context between dental and nursing or medical settings, with the latter being where most of the models of PCC have been developed. The chapter concludes with an outline of the proposed conceptual approach to PCC adopted in this study.

2.2 The origins of patient-centred care

The PCC concept can be traced back to Balint (1955), who proposed that doctors should take a patient's psychological needs into account during an examination instead of focusing solely on the biological aspects of the illness. Balint (1969) coined the term 'patient-centred' when she proposed viewing the patient as a unique human being, unlike in the 'illness-oriented medicine' model. This represents a change in health care professionals' (HCPs) primary goal of only diagnosing and treating the disease, which is the goal of the illness-oriented biomedical model. The biomedical model of care focuses on the person's disease, ignoring other factors that influence the patient's own experience of the

illness as well as the particular social context in which individual patients experience the disease (Engel, 1980, Wade and Halligan, 2004). This model is clinician dominated, so the main role of the patient is to answer closed-ended questions, which helps the clinician arrive at a diagnosis and write a treatment plan (Roter et al., 1997). The biomedical model views the HCP as a more knowledgeable and experienced person than the patient. The model suggests that patients should defer to HCPs and adhere to their advice (McLaughlin, 1971). This traditional model has been criticised for its paternalistic approach whereby the HCP treats the patient as a parent would treat his or her child (Emanuel and Emanuel, 1992, Hellin, 2002). Because of this issue, the model fails to generate a comprehensive picture of the illness as experienced by the patient. While this model might be the most suitable for emergency situations in which there is a need to solve an acute problem and provide treatment as quickly as possible, it is not considered appropriate in most other contexts (Emanuel and Emanuel, 1992). Additionally, by adopting the biomedical model, HCPs could overlook factors that contribute to the illness and might render the treatment plan inappropriate and ineffective for a particular patient (Larivaara et al., 2001). For example, the patient might suffer from stress, which may aggravate his or her physical symptoms; if the HCP only treats those symptoms without addressing the stress, the treatment plan might only partially alleviate the symptoms of disease.

One concept that has been suggested as a way to overcome the limitations of the biomedical model is patient empowerment. Empowerment in the medical context refers to a process that facilitates patients taking initiative, solving problems, gaining control and self-managing (Chewning et al., 2012). This concept allows the patient to be more active than in the biomedical model and enables them to take responsibility for their own treatment. However, implementing this construct as an intervention in medical settings has proven to be difficult and has failed to generate the expected positive outcomes (Denig et al., 2014, Asimakopoulou et al., 2012a, Newton et al., 2011, Scambler et al., 2012). The limitations of patient empowerment and the need for a more comprehensive approach to healthcare delivery have been outlined and include a lack of measurement of the necessary 'level' of patient empowerment, a lack of a clear definition of empowerment and difficulties due to clinicians using

empowerment as a tool to pass the responsibility for an illness back to the patient without ascertaining whether the patient is able to or interested in being 'empowered' (Asimakopoulou et al., 2012b, Scambler et al., 2012). This work on empowerment has led some researchers in the field to request a 'return to basics' (Asimakopoulou et al., 2012a) and suggest that there is a need to understand PCC as a primary area, which includes and expands on notions of empowerment.

Although the concept of PCC is more comprehensive, it is actually more adaptable and applicable to real-world situations, making it preferable (Asimakopoulou et al., 2012a). Most elements of PCC are obtained simply by changing the HCP communication style (Levinson et al., 2010). Because PCC is thought to require no additional spending or major administrative changes, it may be a particularly prudent approach that can improve the current healthcare system (Bertakis and Azari, 2011a, Bertakis and Azari, 2011b, Charmel and Frampton, 2008). Since healthcare costs are continuing to rise, efforts to improve the quality of care without further increasing spending are timely and important (Institute of Medicine Committee on Quality of Health Care in, 2001). Thus, PCC may be a valuable approach.

Changes in the ways that doctors communicate and interact with patients have been occurring for some time. In a paper by Laine and Davidoff (1996), the authors demonstrate how the attitudes of doctors and the medical profession have shifted since earlier medicine was practiced in the time of Hippocrates' or Holmes'. They suggest that the changes are apparent in a number of areas, such as the amount of information that is disclosed to the patient, with earlier attitudes suggesting that it is best to disclose as little as possible. Laine and Davidoff (1996), also note that patients have become more involved in the treatment process than in the past. However, this is an opinion paper, and although it provides valuable insight, the information should be treated with caution. For example, although doctors may have improved their treatment of their patients, a number of studies indicate that this change must go much further to match patients' expectations and preferences (Williams et al., 1995, Ford et al., 2003). Some patients who want more information still feel that they are not treated as individuals; they report instead feeling as though they are simply cases and still

feel excluded from the decision-making process (Bowling et al., 2012, Cox et al., 2007).

In summary, PCC as an approach has early origins. Although some evidence suggests that there has been progress in moving from a paternalistic model to one that considers patients holistically, some patients may still find that the care they receive is not particularly patient-centred. Knowing how PCC started as an approach in medicine could help explain the need for it and the motivations for its emergence. It would be interesting to know, for example, why researchers, doctors, and policy-makers alike have advocated for such an approach. The following section explores these ideas.

2.3 Why are researchers interested in patient-centred care in dentistry?

There has been increased interest in the concept of PCC in dentistry. This relatively new engagement with this approach (Mills et al., 2013) could be attributed to a number of possible reasons. First, the call for practicing PCC as opposed to the traditional biomedical model features either explicitly or implicitly in the current policies and guidelines for dentists and dental teams. In the NICE guidelines for patient experience in adult National Health Services (NHS) services, three of the five principles can be classified as dimensions of PCC. These guidelines are *knowing the patient as an individual*, *tailoring healthcare services for each patient* and *enabling patients to actively participate in their care* (NICE, 2012). The fourth guideline – continuity of care and relationship – is considered one of the principles of PCC as defined by Picker Institute (Picker Institute Europe, 2005, Gerteis, 1993). Furthermore, the latest UK General Dental Council (GDC) standards for dental teams (GDC, 2005, GDC, 2013) consist of nine principles, with two particularly related to PCC. The first related principle is to *put the patient's interest first*. This includes listening to patients and considering their preferences and concerns, treating them as individuals and taking into account their general well-being in order to provide them with the most suitable and personalised treatment. The second PCC-related principle is to *communicate effectively with patients*. This includes listening to patients and acknowledging their right to be part of the decision-making process. The principle also guides

dentists and dental teams in providing patients with information in a way the patient can understand. This allows patients to make informed choices.

In addition to the dentistry-specific policies and guidelines, the current interest in PCC in dentistry could secondly be attributed to the growing body of evidence outside dentistry that demonstrates there may be positive patient outcomes following PCC interventions. Medicine and nursing, and more recently dentistry, have offered some evidence of this effect, which the following sections discuss in detail. The third reason for the interest in PCC in dentistry is that some people consider PCC to be a patient right. Berwick (2009) has suggested that this alone necessitates the adoption of PCC, even if it would have no other outcomes. Patient-centred care is viewed as the moral approach for delivering care to patients (Laine and Davidoff, 1996).

In addition to the perspective of the PCC approach as a patient right of its own, medical law has seemingly aligned with practices that follow the PCC approach (Laine and Davidoff, 1996). Here, it appears that many cases have been ruled in favour of the patient because the court agreed that the doctor in question did not provide the patient with sufficient information. Otherwise, it was deemed that the doctor did not explain the possible risks associated with the treatment (Epstein, 1976). Similarly, doctors who practice in a doctor-centred rather than patient-centred way tend to receive more complaints (Levinson, 2011). These medico-legal findings, although found in medicine, may have implications for dentistry.

Finally, adopting PCC in dentistry is needed because patients have prioritised dimensions of PCC and have found them to be important. One study done by King's college London and the King's fund (2011) has searched the literature and interviewed patients and carers, as well as accessed other sources of information, in order to identify 'what matters' to patients. The study have found that patients greatly emphasised the relational aspects of care (King's College London and The King's Fund, 2011). Based on patients' interviews, the study has identified several themes as important to patients, including *being treated as a person*, *individualised treatment*, *given options and information* and *involvement in care* (King's College London and The King's Fund, 2011). This signifies that PCC is a timely area to consider in view of policy, patient, ethical and medicolegal reasons.

2.4 Definitions of patient-centred care in medicine

Most of the PCC definitions have been developed for general medical and nursing contexts. The Institute of Medicine (IOM) has defined patient-centredness as 'Health care that establishes a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patients' wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care' (Institute of Medicine Committee on Quality of Health Care, 2001). In addition to this definition, various principles of PCC have been proposed. The Picker Institute (Picker Institute Europe, 2005), which advocates for patients and supports the adoption of PCC, has recognised eight PCC principles:

- Access to care
- Respect for patients' values, preferences and expressed needs
- Information, communication and education
- Co-ordination and integration of care
- Emotional support and alleviation of fear and anxiety
- Involvement of family and friends
- Physical comfort and pain alleviation
- Transition and continuity

The access to care principle was not included initially (Gerteis, 1993) but was added later (Picker Institute Europe, 2005).

The NHS definition of PCC on the other hand expands on the Picker Institute definition (Department of Health, 2012), as it is designed mostly so it can be adopted by a whole organisation or department rather than only by individual HCPs. To this end, the NHS National Quality Board (2012) added elements related to the dignity, privacy and independence of service users.

Generally, the definition of PCC is influenced by its subjects of comparison (Bensing, 2000). In particular those considering it the opposite of the biomedical approach focus their definition on the HCPs, remaining attentive to the illness' biopsychosocial elements. In this approach, the HCPs must take into account the social and psychological issues potentially affecting the patient and not only the

illness' biological element (Engel, 1980). This biopsychosocial approach also focuses on the issue of understanding the patient as an individual and how that person uniquely experiences the illness.

However, others such as Dowsett et al., (2000) have viewed the concept of PCC as antithetical to the doctor-centred approach. Here, the PCC definition concentrates on providing as much or as little information as the patient wants and involving the patient in the decision-making process (Byrne and Long, 1976).

Other researchers e.g. (Kitson et al., 2013) have aimed to deconstruct PCC by understanding its constituent components. They have thus conducted a review to identify the core of patient-centred care by searching the health policy, medical and nursing literature, reviewing a total of 60 papers. Three main themes emerged after this review: *patient participation and involvement*, *the relationship between the patient and the healthcare professional* and *the context where care is delivered*. Under each theme, they list a few sub-themes. For example, under the *patient participation and involvement*, there is the sub-theme *patient participating as a respected and autonomous individual*. This sub-theme in turn contains several categories listed under it, such as *patient as a source of control*. In the *relationship between the patient and the health professional* theme, there are also a number of sub-themes, one of them of particular interest: being the *genuine clinician-patient relationship*. Under that there are two categories: *care based on a continuous healing relationship* and *clinician-patient relationship*. Under the *context where care is delivered* theme, there is one sub-theme called *system issues*, which includes categories such as access, barriers to PCC and supportive organisational system. Kitson et al., (2013) paper illustrates that the cores of PCC after reviewing different models were concerned with involving patients in the process, improving the relationship between the HCP and the patient and improving the context in which healthcare is being delivered. These core elements can be found in most of the models that are discussed in the next section. The exception might be *the context where care is delivered*, which is mainly because a number of these models focus on the patient-HCP interaction as a way to deliver PCC rather than studying the whole system in which the healthcare is delivered. However, this is understandable considering the number of issues that must be covered and examined in order to design the context and its effect on PCC.

Other work has focused on the nature of PCC. For example, the paper by Sidani and Fox (2014) has seen PCC as a complex intervention rather than a single theoretical concept. The researchers have focused on this work in identifying the specific elements of PCC (i.e. those that would serve as the essential components of PCC) and the non-specific elements (which were considered the means through which PCC is delivered but which are not *particular* to PCC). Sidani and Fox (2014) found three main components particular to PCC: *holistic care*, *collaborative care* and *responsive care*. *Holistic care* is simply comprehensive care that covers elements such as seeing the whole person, providing health promotion, identifying and meeting patient needs and identifying the different aspects of the illness. *Collaborative care* essentially is about the various parts of the decision-making process, such as offering options to patients, negotiating the options with them and sharing information in a way that encourages and facilitates patient participation. The final component, *responsive care*, is about tailoring the care to the patient. This entails delivering individualised care that fulfils the patient's wants and needs. Researchers have viewed the concept of *therapeutic alliance* as the non-specific element that is needed to implement PCC, though it is not particular to PCC, and have equated it to the relationship between the patient and the doctor. It is through this relationship that HCPs and patients exchange information and demonstrate their respect for each other. According to Sidani and Fox (2014) paper, a good relationship is essential for delivering the actual elements of PCC. This view is in contrast to other work, such as Mead and Bower (2000) and Stewart et al., (1995), which considers the therapeutic alliance to be one of the main elements of PCC.

Similarly to Sidani and Fox (2014), Morgan and Yoder (2012) have examined the literature on PCC with an emphasis on PCC in a post-acute healthcare setting in order to identify the main attributes of PCC. Morgan and Yoder (2012) have suggested that PCC consists of four main attributes: *holistic care*, *individualised care*, *respectful care* and *empowering care*. *Holistic care* takes into account the whole person and also examines his or her biopsychosocial aspects rather than only the biological aspect. The example provided by Morgan and Yoder (2012) illustrating a holistic care was of a patient asking for elements needed for spiritual healing to be added to his room in order to help with the healing process. *Individualised care* concerns tailoring the care to meet the patient's needs and

preferences rather than giving all patients the 'standardised care' that is suggested for their condition. As the name suggests, *respectful care* refers to treating patients with respect and giving them the right to choose from a variety of options in relation to their care as well as other aspects of care such as daily routine for inpatients. *Empowering care* works to make patients more autonomous and self-confident so that they can participate more actively in their care and in decision-making. The example provided in Morgan and Yoder's (2012) paper for empowering care builds on the earlier example given for holistic care. The empowering part was of the nurse asking the patient for details on how to add the healing elements to the room and as a result, empowering the patient to be part of his own treatment and healing process. In addition to these defining attributes of PCC, the model suggests some antecedents and consequences regarding the adoption of these attributes. An example of an antecedent is *vision and commitment*, and an example of a consequence is *increased satisfaction with healthcare*. The strengths of this conceptualisation of PCC lies in how Morgan and Yoder (2012) have tried to consider the antecedents as well as the consequences of PCC and suggest a number of potential measures for assessing the antecedents, the attributes and the consequences.

A final concept that is critical for understanding and implementing PCC is patient-centred communication. Epstein et al., (2005) have distinguished between patient-centred communication, PCC, and patient-centeredness. Their definition of *patient-centeredness* is a moral philosophy with three central values:

- i) Offering patients opportunities to provide input and participate in their care
- ii) Enhancing partnership and understanding in the patient-doctor relationship
- iii) Considering patients' needs, wants, perspectives and individual experiences

Epstein et al., (2005) have defined *patient-centred care* as actions undertaken to achieve the patient-centeredness philosophy. These include health systems innovations, technical interventions and interpersonal behaviours. Finally, *patient-centred communication* encompasses how the communication style

between HCPs, the patient and his or her family enhances patient-centeredness. Patient-centred care in Epstein et al., (2005) is more comprehensive compared to other common models of PCC and might be similar in its comprehensiveness to how Sidani and Fox (2014) view the concept discussed earlier in that it includes the context in the definition of PCC. It also includes how different aspects of the healthcare organisation can be designed and utilised in a way that supports the implementation of the three core values of patient-centredness.

Attempting to define PCC by examining papers that have sought to offer such a definition has indicated that PCC can vary in meaning from person to person depending on the reasons for wanting to understand PCC. It would follow that one of the main issues that may act as a barrier to implementing PCC is that the concept of PCC is not named consistently by HCPs and researchers, and consequently varies in definition across settings (Morgan and Yoder, 2012, Naldemirci et al., 2016).

2.5 Models of patient-centred care

Building on the definitions outlined above, a number of models have been developed with the aim of collecting and operationalising the key components of PCC in a way that might make the concept more applicable in practice. The section that follows reviews models of PCC in detail. In doing so, it evaluates the initial models that were developed within medicine and presents some more recent models that have been constructed specifically in relation to the practice of dentistry. The medical models are presented first, as they provide the conceptual basis for much of the work that has been carried out in the dental field.

2.5.1 Models of patient-centred care in medicine

The following four models are reviewed here because they are prominent in the PCC research area: the Stewart (2003), Stewart et al., (1995) model, the Mead and Bower (2000) model, the Epstein et al., (2005) model and the Asimakopoulou and Scambler (2013) model. It should be noted that the Epstein et al., (2005) model is particular to patient-centred communication rather than to a wider PCC approach. However, Epstein et al., (2005), have viewed patient-centred communication as the way in which the interaction between the doctor,

the patient and the family can be used to achieve patient-centredness. As such, their model was deemed relevant for inclusion here. In fact, Epstein et al.'s (2005) definition of patient-centred communication is similar to other researchers' definitions of PCC, with the exception being that the Epstein model focuses only on the communication act and does not include any dimension related to how the healthcare system or HCPs interact with each other to adopt PCC. Thus, Epstein et al., (2005) conceive of any system-related aspect as belonging to PCC rather than patient-centred communication.

The Stewart model of PCC

The first of these models, developed by Stewart et al., (1995), posits six dimensions;

1. The first dimension is *exploring both the disease and the illness*. The HCP should not focus all the attention on the signs and symptoms (disease) but also consider how the patient as an individual experiences those signs and symptoms (illness).
2. The second dimension of this model relates to *understanding the person as a whole*. This includes knowing the patient's history, their current social situation and any psychological issues as well as how these issues affect his or her experience of the illness.
3. The third dimension is *finding common ground* in three main areas: agreement between the doctor and the patient on the nature of the problem; the plan for treating or managing the problem; and the role of the patient.
4. The fourth dimension in this model is *incorporating prevention and health promotion*, which concerns prevention and promotion on a patient level rather than a population level.
5. The fifth dimension is *enhancing the patient-doctor relationship* by showing empathy and addressing concerns and by the doctor being self-aware and reflective.
6. The sixth dimension is the need to *be realistic, both in teamwork and team building and in time*.

It has been suggested that these processes are equally important in delivering a PCC consultation. The Stewart et al., model was developed particularly for family medicine but has been applied in the general medical field (Bedos and Loignon, 2011). As there are no studies testing this model's applicability to dentistry, it is uncertain whether it is applicable to dental settings without modifications. In general medical consultations, the actual treatment rarely occurs during the visit itself (Sondell and Soderfeldt, 1997). In a dental consultation, the dentist is expected to deliver the actual treatment during the visit in addition to making the diagnosis and reviewing the case. This differs from the average medical consultation, which consists of reviewing a case, documenting a history, diagnosing and developing a treatment plan. Therefore, although this model appears comprehensive, its applicability in dentistry has not been demonstrated.

The Mead and Bower (2000) model

Rather than the six dimensions proposed by Stewart et al., the Mead and Bower model identifies five dimensions of PCC:

1. The first dimension is the *biopsychosocial perspective*. In this dimension, the HCP should examine the patient's biological signs and symptoms as well as study his or her social and psychological state.
2. The second is the *patient-as-person* concept, which might resemble the previous dimension but is more personal and aims to understand how each patient views and experiences his or her illness as well as the particular effects it has on his or her life.
3. The third dimension is concerned with *sharing power and responsibility* and the fact the relationship between the patient and the doctor should be more equal and balanced in power in order for care to be patient centred.
4. The fourth dimension in this model is the *therapeutic alliance*, which concerns the relationship between the doctor and the patient. It is defined as 'the collaborative and affective bond between therapist and patient' (Martin et al., 2000).
5. The fifth dimension, *doctor as person*, has received little research attention (Winefield et al., 1996). It concerns the subjectivity of the doctor, and

particularly how he or she might react to patients and be influenced (positively or negatively) by them.

As with the Stewart et al., model above, this model also posits that all five processes are equally important in delivering PCC.

The Mead and Bower (2000) model, although one of the most frequently cited models of PCC for operationalising the concept, is not without limitations. The model's construction was mainly based on reviewing the literature, and the researchers obtained the opinions of neither HCPs nor patients when developing the model. Furthermore, despite describing some of the measures used for the different dimensions of PCC, they did not specify how to implement these dimensions. Also, the fifth dimension in their model (doctor as person) seems difficult to measure, especially since none of the measures included in the paper actually measured this dimension (Mead and Bower, 2000).

The Stewart (2003), Stewart et al., (1995) and Mead and Bower (2000) models have common dimensions: *exploring the disease and illness* in the Stewart model corresponds to the *biopsychosocial perspective* in Mead and Bower; *understanding the whole person* highly resembles *patient as person*; and *finding common ground* shares similar aspects with *sharing power and responsibility*. In the Stewart model, the *enhancing the doctor-patient relationship* component can be linked to the *therapeutic alliance* dimension in Mead and Bower.

While these similarities demonstrate that these two models address the same concept, there are also several important differences between the two models. The Mead and Bower (2000) model is concerned only with the aspects of the relationship between the HCPs and the patient during a consultation and does not take into consideration any other factors in the healthcare system that can make the care more patient-centred on a system level. For example, Mead and Bower (2000) did not include the dimension of prevention and promotion, possibly because they did not believe it was included in the concept of PCC and instead associated it with the field of public health. Moreover, their model does not aim to or suggest that it does represent a method that can be adopted and taught to HCPs although such an assumption may be implicit. The Stewart (2003) model,

on the other hand, was explicitly and specifically developed for use as a clinical tool by HCPs and based on clinical experience in the field of family medicine. Stewart et al., (2003) also incorporated two dimensions in the model that cover more than the nature of the doctor-patient communication. Unfortunately, this inclusion also fails to apply the Stewart et al., (2003) model to the system level, as the model focuses mainly on how HCPs can include preventive and health promoting aspects into the visit rather than more substantial issues, such as the context of the healthcare delivery itself.

The Epstein et al model

Epstein et al., (2005) have proposed an operational definition of *patient-centred communication* that includes the following:

- Understanding the patient within his or her unique psychosocial context
- Eliciting and understanding the patient's perspective (ideas, concerns, functioning, feelings, needs and experiences)
- Helping patients share power and responsibility by involving them in choices to the degree that they wish
- Reaching a shared understanding of the problem and its treatment with the patient that is concordant with the patient's values

The Epstein et al., (2005) model possesses similar components to the other models of PCC, particularly focusing on understanding the patient within his or her unique psychosocial context. As discussed earlier, Epstein et al.,'s (2005) model represents *patient-centred communication* rather than PCC per se. Since it predominantly concerns patient-centred communication, it does not cover dimensions such as health promotion. The strength of the Epstein et al., (2005) model is the provision of an operational definition of patient-centred communication; however, its particular strength is that it was accompanied by recommendations to adhere to when developing a measure for PCC, one of which is to avoid an over-inclusive definition that includes general good communication behaviours. Instead, it advocates for the need to remain true to the components of PCC. Although this research developed an operational definition based on a literature review of previously developed models, it did not

take into account practitioner feedback. Thus, the model was not applied to practical settings and the efficacy of the model to generate PCC in daily practice remains untested.

The Asimakopoulou and Scambler (2013) model

The fourth model of PCC emerged from merging the two previously described PCC models: the Mead and Bower (2000) model and the Stewart (2003) model. Asimakopoulou and Scambler (2013) built their hierarchy model on the four preexisting dimensions suggested in the work of Mead and Bower and Stewart et al., (Mead and Bower, 2000, Stewart et al., 1995, Stewart, 2003): patient as a whole person; exploring disease and its context; doctor-patient relationship, including common ground and sharing responsibility; and doctor-patient relationship ethos. Asimakopoulou and Scambler (2013) assumed the view that these four dimensions are essential components of fundamental, humane care, rather than genuine PCC. They argued that PCC is more than those four dimensions, but that it rests on those four dimensions of basic healthcare. This framework was initially developed for use with diabetic patients rather than in dentistry (Asimakopoulou and Scambler, 2013). The model specifically considers the role of information and choice in a PCC relationship. It particularly proposes four levels of information and choice in a PCC relationship between HCP and patient, which build on the basic dimensions proposed by Mead and Bower (2000) and Stewart et al., (2003), in a hierarchy of different levels of information and choice giving. The idea behind this model is that clinicians need to meet all four basic principles of basic humane care, after which they can offer patients more or less information and choice at various levels of the hierarchy.

In the first level, the HCP provides the patient with only general information about the condition and its treatment, such as dietary recommendations or instructions for taking medication prescribed by the HCP. In this level, no choice of any kind is presented to the patient, as the patient is expected to follow the HCP's instruction. In the second level, in addition to the general information presented in the first level, the HCP offers different available choices to the patient and notes the main advantages and disadvantages of each choice. In this level, patients are encouraged to make a choice, which includes the option of no treatment, and their personal preferences and social context are taken into consideration. In the

third level, in addition to the HCP providing the information on all available choices and taking into consideration the patient's psychosocial context, priorities and preferences, the HCP works with the patient to arrive at the most suitable choice for him or her. In the third level, the HCP acknowledges that patients might have the same physiological signs and symptoms, yet this does not mean they all want the same treatment or will respond to it the same way. The idea here is that a treatment plan that is good for one patient might not be as good for another, especially when patient preferences and expectations are considered. At the fourth level, the patient makes decisions, with the help and guidance of the HCP, about which treatment option he or she would prefer and how to control and manage the condition.

The strengths of this model lie in the fact that the information provision element is considered ideal when the HCP provides the patient with the necessary information (the amount is affected by the patient's preferences) on all the available treatment options. This is particularly important if no evidence-based option exists and the available options have their own benefits and risks. This approach permits the patient to make his or her own trade-offs, based upon individual preferences, by weighing the available options.

Even though the provision of information is critical, it does not solely ensure that the HCP is patient centred. Healthcare practitioners can give information in a totally paternalistic way (Edwards et al., 2003). Finally, information giving in itself is not sufficient for patient behaviour change (Joseph-Williams et al., 2014).

For these reasons, the element of choice in the model is vital. Patient activation is achieved by giving patients the necessary information on available options and subsequently the ability to select from those options in order to improve their sense of responsibility for their own health (Hibbard et al., 2004). In the hierarchy's fourth and last level of choice, the patient is the only decision-maker. Here, the HCP acts as a guide to help the patient arrive at the most desirable option.

Although this model of PCC overcomes some of the problems presented in other models of PCC (i.e. dimensions are typically complex, such as in the biopsychosocial approach, which some view as a model in its own [(Borrell-Carrió et al., 2004)]), such as in the Mead and Bower (2000) and the Stewart (2003)

models, it is not without limitations. First, the hierarchy is purely theoretical and has not yet been tested. Second, when developing this hierarchy, the opinions of those who will implement it have not been taken into consideration. In other words, the HCPs working with diabetic patients were not consulted in regard to how to develop and apply the hierarchy. Third, this hierarchy mentions the use of decision aids to help patients choose the most suitable treatment plan, but it does not mention or imply which decision aids are most suitable to use during a consultation with diabetic patients. As such, it requires empirical testing before it can be implemented in practice.

This section has reviewed several models of PCC. It has become apparent that there is no single model that clearly defines PCC or outlines its practical application. While models such as the Planetree model (Shaller, 2007) view basic humanity and a respectful attitude towards patients as PCC, others such as the Asimakopoulou and Scambler (2013) interpret such a stance as a prerequisite of high quality care rather than as patient centred. It would appear that with the exception of the Asimakopoulou and Scambler (2013) model, the models offer minimal opportunities for a practical application of their tenets in everyday clinical practice. As a next step, the operationalisation of PCC is necessary using a practical means of implementing PCC in everyday practice. The thesis seeks to address this shortcoming in the literature. Before doing so, however, it is essential to establish that a patient-centred model of care should have positive health outcomes, or at least avoid causing any harm. The section that follows reviews evidence of the positive effects of a PCC consultation on patient outcomes.

2.6 What are the benefits of patient-centred care?

A body of work has been developed which investigates the efficacy of PCC and its impact on patient outcomes. This body of work has been carried out mostly in the fields of medicine rather than in dentistry, but it has informed the rationale highlighted above for the promotion of PCC in dentistry. However, as this thesis concerns PCC in dentistry rather than in medicine or nursing, the aim of this literature review is to obtain overarching evidence on the outcomes of adopting PCC. This was achieved by identifying any systematic reviews or meta-analyses

conducted on this topic in order to evaluate the extent to which the evidence indicates positive outcomes that could result from adopting PCC dimensions.

A number of recent systematic reviews and ordinary reviews were conducted on this topic. Systematic reviews are presented first, followed by ordinary reviews. Each section is organised in chronological order.

Systematic reviews

Griffin et al., (2004) have carried out an early systematic review. Their paper evaluates the effects of interventions designed to change HCP and patient interactions. The included interventions could thus target the patient, the doctor or both. The review studies objective health outcomes (e.g. cholesterol level) as well as subjective health outcomes (e.g. functional status) and other outcomes (e.g. cost and knowledge). Finally, it also examines patient satisfaction and treats it as a separate outcome. The inclusion criteria of this systematic review were appropriate since the study had to be conducted in a primary or secondary medical or nursing setting. The participants needed to be randomly selected and allocated to the intervention group, and there should have been an assessment of an outcome, satisfaction or both. This resulted in the inclusion of 35 randomised controlled trials (RCTs) in this systematic review, with only six of them measuring objective health outcomes, such as blood pressure.

In general, positive results were observed in the intervention groups, with around 74% of the trials exhibiting positive outcomes in the intervention group, including improvements in patient satisfaction. The review also suggests that interventions directed at patients (e.g. pre-consultation session with a HCP) did not result in negative outcomes (e.g. lower functional status compared to the control group). This, however, was not the case with interventions targeting HCPs, with nearly half of these interventions reporting at least one negative outcome compared to the control group. One example is an increase in body mass index (Kinmonth et al., 1998), which was measured as one of the outcomes in the intervention group.

The report has also determined that interventions aimed at patient activation, i.e. *'an individual's knowledge, skill, and confidence for managing their health and health care'* (Hibbard et al., 2004), that were attentive to emotion, provision of

information and activation of HCP demonstrated promising results. Namely, Griffin et al., (2004) reported that most of the studies (15 out of 17) that aimed to activate the patient resulted in improved health outcomes.

The strength of this study is that it clearly presents and divides the different outcomes in adequate detail. Furthermore, it categorises the interventions as those targeting HCPs, patients or both, which facilitates the identification of a link between interventions that are targeted at patients and certain outcomes, for example.

Dwamena et al., (2012) have also conducted a later systematic review of the effects of PCC interventions targeted at HCPs. This review is an update of an earlier review by Lewin et al., (2001) that included a wider range of study types compared to the present systematic review, which included only RCTs. The present review defines PCC as:

a philosophy of care that encourages: (a) shared control of the consultation, decisions about interventions or management of the health problems with the patient, and/or (b) a focus in the consultation on the patient as a whole person who has individual preferences situated within social contexts (in contrast to a focus in the consultation on a body part or disease) (Dwamena et al., 2012, pg.2).

The review focuses on the clinical consultation and groups the outcomes into four main categories: consultation processes, such as provider communication skills; satisfaction; health behaviour, such as attending a follow-up; and health status, such as physiological measures. Forty-three studies were included in the systematic review, 29 of which were new studies that the previous review did not include. In the health status outcome category, 12 of the 26 studies that assessed this outcome demonstrated positive effects. For healthcare behaviour, only 17 studies measured this type of outcome, with eight of these studies revealing a positive effect. With regard to satisfaction, 12 of the 26 studies that reported this outcome evidenced a positive result. Finally, for the consultation process outcome, 28 out of 35 studies reported positive effects of the intervention, which is the highest of the outcomes. This systematic review is more detailed compared to the other reviews; it presents thorough information on each study as well as on possible biases within the studies. In general, the review reports that interventions

targeting HCPs reflect improvements in new skill development but also yield mixed results in other outcomes, such as health status. Moreover, patient health behaviours display some improvement as well, especially when combined with specific educational materials and training for patients.

A year later, Rathert et al., (2013) conducted a systematic review on the outcomes resulting from the adoption of PCC. This review specifically focuses on the outcomes of PCC as a concept rather than on any single dimension of PCC, such as the doctor-patient relationship, as well as on shared decision-making (Joosten et al., 2008, Shay and Lafata, 2015, Kelley et al., 2014). Rathert et al., (2013) sought to identify which of the PCC processes noted in the IOM definition of PCC could improve outcomes. They hypothesised patient condition and expectations as moderators between the PCC processes and outcomes and patient activation and adherence as mediators. The review includes 40 articles, which they categorise as studies focusing on either patient preferences, individualisation or involvement. They then sub-divide studies into those that concern information and communication processes, those that include all of the IOM PCC dimensions, and those that concentrate on one or more of the remaining dimensions of PCC, such as continuity of care.

The review generally finds that nearly all of the studies reported positive outcomes in relation to improvement in patient satisfaction and well-being. For example, in one study included in the review (Lee and Lin, 2010), the intervention resulted in improvements in trust and patients' self-rated mental health, but not in the physical health aspect. On the other hand, the review specifies mixed results on clinical outcomes and long-term outcomes. For example, following on the earlier study by Lee and Lin (2010) that collected survey data from patients three times in 12 months, improvement was observed in patient satisfaction and mental health quality of life, but measures of blood sugar levels (HbA1c) indicated no such improvement. Studies that have included all of the IOM dimensions generally report positive outcomes compared to those that only feature one or two dimensions and which typically yield mixed results in some of the assessed outcomes. Finally, the review suggests that mediators and moderators could influence the resulting outcomes as hypothesised; for example, patients' expectations and preferences for involvement were hypothesised to exert a

moderating effect on the outcomes resulting from PCC interventions and were found in a number of studies that have assessed this effect. Returning to the Lee and Lin (2010) study, Rathert et al., (2013) found that the PCC intervention, with its focus on improving patient autonomy, demonstrated more results in physical quality of life for patients who want to be involved in the decision-making process. This implies that patients' desires for involvement could either strengthen or weaken the resulted outcome of PCC interventions.

The strength of this review was the inclusion of a comprehensive model of PCC: the IOM model. Thus, the review focused on studies that mention one of these explicit dimensions in order to establish a link between specific health outcomes and specific PCC dimensions. Furthermore, the addition of the hypothesised moderators and mediators partially explained, or at least suggested, a potential reason for the differences in the outcomes.

In the same year, McMillan et al., (2013) carried out a systematic review on the outcomes of PCC interventions. The review focuses only on RCTs that concern people or settings dealing with chronic conditions. McMillan et al., (2013) identified 29 articles that met the inclusion criteria. One of these articles reported on two RCTs, so the total number of RCTs included in this review is 30. The PCC model they used to guide this systematic review was developed by Morgan and Yoder (2012). They also characterised the interventions as *simple*, *complex*, *training* or *observational*, then divided the outcomes into the most common ones: *patient satisfaction*, *perceived quality of care* and *health outcomes*. The review concludes that results were generally promising; for example, PCC led to increased patient satisfaction, improved perceptions of the quality of care – at least from the patient perspective – and improvements in patients' emotional wellbeing, not to mention that PCC did not usually require longer consultation times. Some studies have still reported mixed outcomes, but McMillan et al., (2013) noted that a number of these studies were classified as high risk (in relation to bias in the study design), and therefore advised that the mixed outcome results should be interpreted with caution. The review suggests that interventions that focus on advancing the communication skills of HCPs as well as patients' involvement in the decision-making process seem to be most promising for improving patients' satisfaction and engagement. The review finally highlights the

need to study the long-term effects of PCC interventions and the sustainability of these interventions and their effects over time. The review succeeds in adopting a model and organising the various studies included around that model as well as in dividing the expected outcomes, which makes it easier to recognise them. McMillan et al., (2013) were also effective in reporting and ranking the biases in each study. The limitation of this review is that it only included studies on chronic conditions, so the extent to which the findings can be generalised in other settings still remains uncertain.

In contrast, Fredericks et al., (2015) have conducted a more recent systematic review with the aim of examining the effects of PCC interventions on two main outcomes – quality of care and self-care behaviour – in both in-patient hospitalisation and in self-care behaviours after hospital discharge. The authors also intended to identify characteristics of PCC interventions that yield effective results in terms of better quality of care and improvement in self-care behaviour, which were the main outcomes of the review. The inclusion criteria were as follows: the study must target adults; the measured outcome should include one of the two outcomes under examination; the study must have been published between 1995 and 2014; and the language must be English. Finally, the design could have been non-experimental, quasi-experimental, experimental or RCT. This resulted in 40 studies that Fredericks et al., (2015) determined had met their inclusion criteria. As for the characteristics of the PCC intervention, the authors found that the majority of these interventions were educational (90%) or counselling (10%) related. Methods of PCC delivery in these interventions was found to be mostly individual (76%), while 14% were combined – targeted at both individuals and groups – and 10% were targeted at groups only. The intervention itself was delivered in a combined written and verbal format in 67% of the studies. The remaining studies were heavily verbal (29%), with only 5% delivered through written format. In addition to these characteristics of PCC intervention, this systematic review also considered the type of intervention delivered (i.e. structured), the timing of delivery (i.e. post-hospital discharge) and the provider of intervention delivery (i.e. researcher, staff). The study found that little research has examined the effect of a PCC intervention on patients after discharge. Fredericks et al., (2015) reported that only 10 of the 40 studies concluded that the PCC intervention efforts were effective. The review also suggests that PCC

interventions might be most effective with people in acute care compared to those who have a chronic condition. Additionally, the review reports that interventions delivered at multiple points in time were most likely to evidence a significant improvement in patient health outcomes. The authors have further suggested the need to take the culture into account, particularly its possible impacts on people's interest in engaging with the PCC interventions.

The results of Fredericks et al., (2015) review appear to contrast the findings of previous studies. However, this is explained upon carefully reviewing the paper. The review has some issues with reporting the results of the included studies. For example, when suggesting that PCC interventions were not that effective with chronic illness, it offers no exact number of studies that reported out of the total number of studies examining people with chronic illnesses to justify this claim. Another issue with this systematic review is that although the authors identified sufficient details regarding the study characteristics, the characteristics of participants and the characteristics of the PCC interventions, this could not be said about the outcomes, which were scarcely addressed. The results of this review need to be interpreted in light of these limitations.

In addition to systematic reviews, the literature search revealed some ordinary reviews of PCC effects on health outcomes. These are discussed in the following section.

Reviews

In an early review of the literature performed by Stewart (1995) regarding the quality of patient-doctor communication and its effects on the health outcomes of patients of all ages, 16 of the 21 studies that met the inclusion criteria evidence positive results, while one study reports inconclusive results and four report nonsignificant results. This review includes studies that have developed an intervention targeting either the patient or the clinician as well as studies that did not entail alterations of the situation but did include observation of the different behaviours and their effects on patient health outcomes.

Mead and Bower (2002) later carried out a review of the literature on the various outcomes of PCC consultations in primary care settings. This review is interested

not only in the outcomes of PCC but also how PCC is defined and measured in each empirical study that was retrieved. Nine studies were identified as eligible for inclusion. The review assesses the applied measurements, internal validity and external validity of each of these studies. Mead and Bower (2002) have concluded that the effects of patient-centred consultations on patient outcomes are ambiguous; some studies report significant results on patient outcomes, such as satisfaction, while others indicate no such meaningful effects. Furthermore, neither external nor internal validity were high for the majority of the studies. The authors have suggested these variations in outcome might be a result of studying the different dimensions of PCC and have argued that each dimension of PCC might have a different effect based on which outcome is being measured. It should be noted that this is not a systematic review or a meta-analysis, so the results should therefore be interpreted with caution.

The following year, Michie et al., (2003) conducted a review with the main aim of understanding whether the two key concepts of PCC (1. eliciting patient views and understanding their perspectives and 2. activating the patient to have some control in the consultation and/or the management of their condition) as identified in the review had different effects on the health outcomes of patients with chronic illness and whether the various studies have used these two concepts.

Thirty studies were included in this review: 20 were classified under the '*patient perspective*' approach and 10 were grouped under the '*patient activation*' approach. Studies using a '*patient activation*' approach were generally more likely to result in improved physical health outcomes. Six out of the seven studies that examined the effects of '*patient activation*' interventions on physical health reported positive outcomes. For '*patient perspective*', on the other hand, only two out of the nine studies found a positive association between this approach and improvement in patients' physical health. As for patient adherence, 6 out of 8 studies found a positive association in '*patient perspective*', which is comparable to the results of studies classified under '*patient activation*' (5 out of 7). In terms of satisfaction, 6 of the 10 studies classified under '*patient perspective*' noted a positive association, and in '*patient activation*', the two studies with satisfaction as an outcome identified a positive association. In this review, Michie et al., (2003) also examined quality of life, improvement in patient well-being and stress

reduction as outcomes of PCC. Here, there was limited evidence of studies addressing these outcomes, with only 2 of the 30 studies included in this review having done so. These two studies were classified under the '*patient activation*' approach. While one of them notes a positive effect, the other reports mixed results.

Although this review helpfully classifies the studies into two distinct types of PCC – *patient perspective* and *patient activation* – it has shortcomings. The review includes all types of studies, regardless of quality (e.g. including a case study and cohort studies in addition to RCTs). Further, Michie et al., (2003) review included some information on the quality of the studies, but this was not done for all of the studies. As such, the findings of this review may be biased, and further work is needed to assess the review outcomes.

Most of these systematic reviews and review papers have suggested that PCC interventions generally result in better outcomes, although some have reported mixed results. The exception to either positive or mixed results was the review by Fredericks et al., (2015), which suggests that PCC interventions do not seem to benefit chronically ill people compared to people in acute care and only a quarter of the studies included demonstrate positive outcomes, but the limitations of this paper have already been noted.

In contrast, McMillan et al.,'s (2013) systematic review of the effect of PCC interventions on chronic conditions, which only included RCTs, indicates that positive outcomes were generally observed in the intervention group in a majority of the studies. These differences could possibly be a result of McMillan et al., (2013) including only RCTs, which is more rigorous because it controls for possible factors that might confound the findings.

Although systematic review findings in the area suggest overall mixed results in terms of the success of PCC approaches in influencing health outcomes, it would seem that there is more to PCC than simply the contents of the approach. For example, Aita et al., (2005) have conducted a study to investigate which factors can confound the effectiveness of PCC. They conducted a secondary qualitative analysis of the doctor-patient interactions of 44 doctors in 18 family practices. Thereby, they identified four factors that can influence the doctor–patient

interaction: *doctor characteristics, patient characteristics, community culture and practice organisation*. The researchers demonstrated that patients and doctors are not the only factors that affect the patient-centeredness of a medical visit, as all four factors affected the communication between the doctor and the patient. This information offers insight into the reason for some of the outcome variations in the studies included in the reviews above and discussed here. However, although this study is helpful, it is not without limitations. Trained fieldworkers recorded notes during medical visits, which the researchers subsequently analysed. Because the patient-doctor interactions were not audiotaped, they may have been prone to missing information or subject to the biases of the individuals writing the notes. Additionally, this was a qualitative study, and the researchers made note of the fact that the results were not intended to be generalised since the sample was purposefully selected. However, this study could be helpful for future studies on outcomes of PCC, as researchers would need to control for these possible moderators and include them in their assessments of the effectiveness of PCC approaches on health outcomes and other outcomes in general.

In conclusion, while the research to date is not without flaws, it presents some evidence for positive effects of PCC interventions on certain treatment outcomes. The positive outcomes range from improvement in patients' physical health to increased satisfaction with the care.

The systematic reviews and reviews discussed above have relied on individual studies focused on one or more outcomes. The table below lists a number of studies containing evidence for each outcome.

Table 2. 1: *Common outcomes resulting from PCC interventions*

Outcome	Reference
Increased adherence	Stewart et al., (2000), Fuertes et al., (2007)
Improvement in patient satisfaction	Kinmonth et al., (1998), Egan et al., (2007), Moran et al., (2008), Fuertes et al., (2007), Maly et al., (1999)
Improvement in HCP satisfaction	Sullivan et al., (2006), Boulton et al., (2008)
Lower utilisation of health services (including less diagnostic tests)	Bertakis and Azari (2011b), Bertakis and Azari (2011a), Stewart et al., (2000), Casas et al., (2006)
Improvement in patient physical health, e.g. blood pressure	Greenfield et al., (1988), Green et al., (2008)
Improvement in patient general and emotional health, e.g. quality of life survey scores	Kaplan et al., (1989), Kinmonth et al., (1998), Roter et al., (1995), Nijhof et al., (2012), Maly et al., (1999)
Decreased malpractice claims	Charmel and Frampton (2008)

2.7 Patient-centered care in the dental literature

While the term PCC initially transferred to dentistry from medicine, there is a small but growing body of work that has focused on the practice of PCC in a dental setting. The aim of this section is to determine if similar results regarding comprehension of PCC and impact on patient outcomes are present in dentistry. This section presents research that has illustrated the importance and effectiveness of PCC in a dental setting and elaborates on the pressing need for further research.

Mills et al., (2013) have conducted a systematic review of the literature on the application of PCC to dentistry in order to identify how PCC can be adapted to the dentistry field. The authors have reviewed whether the existing literature on patient centeredness in dentistry was evidence based or not. Of the 31 papers included, only four were evidence-based studies. Not one of the studies included had a study population that allowed for generalisations; additionally, they were not representative of the average patient who attends a dental clinic. Finally, only one study incorporated the patients' perspectives of PCC rather than those of dentists. Mills et al., (2013) have concluded that the empirical base of PCC in

dentistry is currently inadequate and that there is a need to develop a tool to measure this concept. They have suggested that in order to encourage the use of PCC in dentistry, it is not enough to use clinical outcome measures as the only indicators of quality; patient-reported outcome measures must be included as well. Even though this systematic review was the first to address PCC in dentistry, the study has some weaknesses. Out of the 31 studies included, detailed information was provided only for the four studies that Mills et al., (2013) identified as evidence based, making it difficult to determine why the rest were excluded. Some of the studies included (e.g. Scambler et al., (2011)) were treated as exploring PCC when in fact they did not. Problems such as these necessitate careful interpretation of the results of this review.

Mills et al., (2014) have expanded on this earlier review (Mills et al., 2013) with another more detailed systematic review. Mills et al., (2014) conducted this systematic review in order to identify main aspects of PCC as noted in primary research studies in the field of dentistry. Out of the 48 papers identified and retrieved, 19 were primary research papers, while the others were opinion or review papers and only 3 articles of these 19 papers met all of the inclusion criteria. These studies demonstrate the importance of patient-dentist communication, empathy, individualised care and information as key features of PCC in dentistry. This systematic review identifies some differences between PCC in medicine and PCC in dentistry; some aspects of PCC that medical literature has considered to be important have been seemingly insignificant in dentistry. These dimensions are 'involvement of family and friends', 'physical comfort' and 'co-ordination and integration'. The review further notes that none of the included studies was representative of general dental practice and calls for studies on patients' perspectives on PCC as well as more primary research studies that examine the evidence of PCC in general dental practice. It justifies this by stating the differences that have been identified between medicine and dentistry.

In order to illustrate the conceptualisation and definition of PCC in dental settings, the section below presents several of the main studies that emerged from the systematic reviews. These studies were selected primarily because they attempted to define or study PCC as a concept rather than as a synonym for any satisfactory care.

These reviews imply that despite some generic principles that might potentially describe PCC in dentistry, the quality of the studies leading to such an observation is questionable at best.

Two of the reviewed studies further demonstrate this. For example, Fontana and Wolff (2011) have advocated for a new model of healthcare in dentistry – a laudable point. In their research on caries management, they have argued that caries is a complex disease and that focusing on prevention and management would be more effective for managing it. They have suggested that the management of caries should concentrate on aspects of PCC, specifically *prevention* and *individualised patient risk assessment*. They have also recommended that the decision-making process for the management of caries should incorporate the use of evidence-based dentistry and dentist knowledge while also taking into consideration the preferences and needs of patients in order to arrive at the clinical decision. Involvement in the decision-making process, they have argued, is important not only for caries management but also in other areas of restorative dental care.

Although this study does not cover all aspects of PCC, it addresses the key ones, such as the dimensions of *patient as a person*, *shared decision-making* and *prevention*, which Stewart et al., (2003) and Picker Institute have recommended as part of the basic dimensions of PCC. At the same time, though, there are problems with how Fontana and Wolff (2011) understand PCC; for example, individualised risk assessment was suggested as a core dimension of PCC when it is not. Individualised risk assessment is likely important, but it is not a core aspect of PCC in any of the previously reviewed models. It is easily apparent that dentists can perform individualised risk assessments in either a PCC or a non-PCC way. It is also evident that despite some degree of understanding of PCC, the focus on the concept is not particularly well defined or precise.

A second example is present in work demonstrating the importance of the quality of the dentist-patient interaction and the patient's desire to be part of the decisionmaking process (Riley et al., 2012). This study conducted a survey to understand the components influencing patient satisfaction in restorative dental care. A total of 197 dentists and 5,405 patients took part in this study. Patients

reported being influenced by their personal interactions with dentists and by their level of involvement in the decision-making process. The shortcoming of this study, however, is the focus on satisfaction surveys as the only outcome, with a number of questions on the survey concerning the practice or the office itself, including questions regarding waiting time and cleanness of the office. Moreover, since it was based only on patients' perspectives, it would not be possible to assert whether this information is reflective of the actual practices of dentists. Finally, no exact definition of PCC was provided apart from a couple references to the importance of using a patient-centred approach, and neither was a list of the dimensions, though these were inferred from the questions in the survey.

In an attempt to answer the question of what PCC means to people working in dentistry, a number of qualitative studies were conducted on PCC in dentistry. One such study aimed to explore what PCC means to dentists, whether dentists were taught to practice PCC and how the PCC approach is practiced in dental surgery (Scambler et al., 2014). The study interviewed 20 dentists who were practicing and teaching at a university hospital in London. The study indicated that dentists in general have a basic understanding of the concept and definition of PCC, as they discussed tailoring the care to the individual patient and involving the patient in the decision-making. However, they also seemed to view PCC as an approach that focused mainly on being 'nice' and accommodating with the patient – in other words, on fundamental principles of basic, humane care. Dentists further expressed that they already practiced PCC, but when asked if they had any formal training on how to be patient centred, most replied negatively. The same authors (Asimakopoulou et al., 2014) published another study on the barriers and opportunities to practice PCC in a dental surgery from a dentist's perspective. Dentists in the study affirmed the importance of PCC in a dental surgery, but seemed to view it as a way to lead patients into selecting the option the dentist believes is best for them. Patient-centred care is considered a way to make the patient more satisfied by 'feeling' involved in the consultation. Dentists who were interviewed reported multiple barriers, both related to patients and to context. Some of these barriers included dentists feeling that patients were either uninterested or overly interested in being part of the consultation. This was thus a patient-related barrier to practicing PCC. Limited time and money were the main context-related barriers from participants' perspectives. In general, it seemed that

the interviewed dentists' viewed PCC as a means to achieve compliance. Furthermore, the treatment choices dentists recalled giving to patients seemed limited to the choices that the dentists deemed best for the patient. This was interesting because this study reduced PCC to a consultation in which patients were given instructions in a 'nice' manner. Although both studies are informative and explored dentists' views and understandings of PCC, the results would need to be replicated in non-dental-school settings. Since the dentists all had teaching responsibilities in the same dental school, they might not be representative of the average dentist. More qualitative studies must be conducted in different settings to understand more clearly how different dentists view PCC and whether they practice it.

In conclusion, as evident from the literature discussed in this section, PCC as an approach has been under-studied and under-developed in dentistry. Most studies that have used PCC have failed to actually define it or to demonstrate its relevance to the study (Mills et al., 2014, Scambler et al., 2016). While some have attempted to examine PCC, the lack of clarity with regard to the definition of the concept and how it can be practiced undermine any findings obtained thus far.

2.7.1 Definitions of patient-centred care in dentistry

Although there is a general lack of studies on PCC in dentistry, there have been efforts to define the concept more adequately and specifically for dental settings. Phillips (1999), who discussed the importance and necessity of reporting patient-centred outcomes in surgical and orthodontic treatment, provided a definition of PCC at the beginning of the article. The definition provided states that PCC is care that *'has two characteristics: it is closely congruent with and responsive to the patient's wants, needs, and preferences, and it considers the psychological, social, cultural, and economic dimensions of the patient in addition to physical findings'* (Phillips, 1999, pg.1.). He has discussed aspects of PCC in clinical practice, such as information provision, patient-doctor relationship and decision-making, and has also described how PCC is necessary because of aspects such as law and informed consent and quality assessment.

While Phillips (1999) definition of PCC covers the main aspects of the concept, this is not the case with other definitions provided. Miles (2000) has defined patient-centred practice as '*giving a patient a positive feeling when he or she calls the office, walks through the front door, is being treated and is being dismissed*'. Throughout the article, being patient-centred is equated with good customer service. Common dimensions of PCC such as shared decision-making and provision of information were not discussed in the article. The one PCC dimension that was remotely covered was working to develop a positive dentist-patient relationship.

It should be noted that although a number of studies in dentistry have used the term PCC or one of its alternatives, the inclusion was merely used to describe a generic approach to care that did not qualify as such (Mills et al., 2013). In other cases, the term was used merely in the introduction, with no further follow-up or justifications for its use (e.g. Reinhardt (2017)).

Given the lack of clarity in understanding the essence of PCC in dentistry, a systematic review was conducted to examine precisely how the dental literature has defined the concept of PCC. In their review, Scambler et al., (2016) have included 28 papers out of 272 originally retrieved. Studies were included if they provided a full or partial definition that was compatible with their developed model of PCC – the hierarchy of PCC (Scambler and Asimakopoulou, 2014). They concluded that despite the increasing number of studies and growing interest in the concept of patient-centeredness in the field of dentistry, most studies did not appropriately define the concept of PCC. Instead of providing a definition that is in accordance with the common dimensions of PCC, the concept was defined and viewed as equivalent to 'good quality care'. In addition, a considerable number of the studies were not empirical in nature; rather, they were review or opinion papers.

It appears that more work is necessary in order to confidently describe the meaning of PCC in a dental context.

2.7.2 Models of patient-centred care in dentistry

Although there is no clear definition of PCC in dentistry, some attempt has been made to establish a model of PCC. This is interesting since it is difficult to envision how a model can successfully operationalise PCC in the absence of a definition. At the same time, it could be that having a model can facilitate the development of a definition. The four models of PCC that have been developed specifically for the dental context are outlined next.

The first model is that of Kulich et al., (2003), who conducted semi-structured interviews with 15 new patients and five dentists. These interviews were conducted in a Swedish clinic that specialises in the treatment of odontophobia, also known as dental phobia (Bray et al., 2009). The interviews were conducted to determine what constitutes a patient-centred dentist and a patient-centred visit. The central discovery from analysing these interviews is that '*holistic perception and understanding of the patient*' makes a dentist patient-oriented. The study's authors have aligned that with Stewart et al.,'s dimension of '*understanding the whole person*' and have identified two subcategories from the analysis: '*the dentist's positive view of patient contact*' and '*the dentist's positive outlook on people*'. These themes imply the view that PCC refers to the dentist being a positive person (whatever that may entail). Kulich et al., (2003) have noted the similarity described in the literature between the doctor-patient interaction and the dentist-patient interaction. The problem with this study is that the sample is representative of neither the average patient nor the average dentist. The patients that the dentists interviewed in this study had treated exhibited particular characteristics since they all suffered from odontophobia. Thus, the dentists selected to treat them because they had special characteristics that were not present among other dentists, such as experience in managing anxious patients (Kulich et al., 2003). These dentists had more time available to discuss the diverse issues of the anxious patients compared to other dentists (Kulich et al., 2000). Furthermore, although these patients had likely presented a number of issues and concerns, these issues might not accurately reflect those experienced by the average patient. As such, the findings relating to PCC being concerned with the 'positivity' of the dentist need to be interpreted within these limitations.

The second model that has been developed for use by dentists is that of Loignon et al., (2010). It was created based on semi-structured interviews with eight dentists who had practised dentistry for between 12 and 45 years in Montreal's low-income areas. The researchers analysed the interviews using content analysis and identified three main themes: *dentists' experiences with low-income patients*, *perception of poverty* and *strategies to overcome difficulties* with this particular group of patients.

The 'socio-humanistic' approach, which the Loignon et al., (2010) occasionally refer to as a patient-centred approach, consequently emerged and included five elements:

- 1) Understanding the patient's social context, whereby dentists try to comprehend the cultural and social factors affecting the patient and consider the patients' needs without judgement
- 2) Dentists showing empathy and taking their time
- 3) Dentists avoiding moralistic attitudes, recognising the difficulties that disadvantaged patients encounter when following treatment plans and working with them to develop a compromise instead of blaming them
- 4) Dentists conquering social differences by being warm and welcoming with their patients
- 5) Dentists who favoured direct patient contact and worked to establish therapeutic alliances with patients were interviewed and said they handled the appointments and some secretarial work by themselves

While useful, this model has problems. Again, it was created from a certain group of patients who are potentially unrepresentative of the general population. The dentists chosen for the study had been practising in low-income areas, so their patients were primarily from a particular socio-demographic and income background. Also, the interview sample size of eight dentists was low, threatening the study's reliability.

The third model has been developed by Apelian et al., (2014) and is based on three main principles that underline the behaviour of a dentist in a clinical encounter: *understanding*, *decision-making* and *intervention*. The understanding principle entails understanding how patients view their own illnesses and how

psycho-social factors might affect these views. At first, this idea could be interpreted as a merger of both the 'patient as a person' and the 'biopsychosocial' dimensions from the Mead and Bower model. The next principle in the model is *decision-making*, which concerns the adoption of a shared decision-making approach and giving power to the patient. The *intervention* principle is mainly about 'being mindful of the patient's existing fears, pace and expectations'. This model was developed after shadowing a dentist who had applied several approaches with the patients in order to determine the best approach. After the 30th iteration of the different approaches, Apelian et al., (2014) decided this approach would produce good results and used it as a basis for this model.

A key difficulty of the Apelian et al., (2014) model is that although it revolves around three main principles, each of these principles includes many underlying concepts that are mixed together. For example, *shared decision-making* and *patient empowerment* are used to describe the decision-making principle. These two concepts might have overlapping dimensions, and some researchers would suggest that shared decision-making influences patient empowerment, particularly due to information exchange (Baars et al., 2010, Edwards et al., 2009a). The extent to which shared decision-making and empowerment are similar concepts under one common principle is, however, questionable.

In addition, even though the Apelian et al., (2014) model provides a comprehensive conceptualisation of PCC for dental settings, the model itself is not particularly practical. So, it proposes a set of principles that may play a part in PCC in dentistry yet these have not been defined in any practical way that might facilitate their adoption in the dental clinic.

A fourth model of PCC has been developed by Mills et al., (2015) based on patients' views and perspectives of what constitutes PCC. In the study, Mills et al., (2015) interviewed 16 patients to learn their views on the various aspects of PCC in general dental practice. This is a strength of the model, as the patient's voice is central to understanding PCC. The data analysis revealed several features of PCC, which Mills et al., (2015) classified as either *functional* or *relational* aspects of care. Five components were listed under the *relational* aspects of care, which patients viewed as more central to the delivery of PCC compared to the functional aspects. These five components were reported to be

connection, attitude, communication, empowerment and feeling valued. Under these five components, patients mentioned wanting to be treated as a person, receive continuity of care and be given options. The five components comprise the core of their PCC model. The functional aspects of care, which form the outer layers in the model, are concerned with the healthcare system in general, such as time and cost, and the physical environment, such as setting and cleanliness.

This model has made a promising start in exploring patients' perceptions of PCC. It falls short, however, in detailing patients' actual meanings when using the above terms; for example, one patient's need for 'empowerment' may differ from another's, and there may not be a universally defined index of ensuring that people are 'feeling valued'. Evidently, empowerment is a difficult concept to implement (Gibson, 1991), assess and practice (Asimakopoulou et al., 2012a). Finally, this model is notably lacking the dentist's voice. While it is valuable to ascertain patients' considerations of PCC in a dental consultation, it is also vital to determine whether the people who are called upon to deliver it, i.e. the dental team, share their patients' views.

In summary, most of the PCC models described here present some limitations and problems. The first two existing models for use in dentistry (Kulich et al. 2003, Loignon et al., 2010) are problematic because they are specific to certain types of patients, and their applicability to a typical patient visit thus needs to be demonstrated. The third, Apelian et al., (2014) model is flawed because it lacks practicality and needs greater focus to be applicable in practice. The fourth model, from Mills et al., (2015), lacks the dentist's perspective. Finally, these models of PCC have in common that they start by providing a conceptualisation of PCC, but they also all lack a set of guiding principles for implementing PCC. There is a need to consider a model that practically guides HCPs in delivering PCC.

It would appear that out of the models reviewed so far, the PCC hierarchy by Scambler and Asimakopoulou (2014) might lend itself to an exploration of its fit within dentistry as a seemingly practically minded model. As such, it was theorised that it might be useful for defining PCC in dentistry because the hierarchy aims to fully operationalise the concept of PCC, breaking it down to two

elements (information and choice) whilst resting on the principles of humane care, covered by the core dimensions as identified in medical PCC models.

At the same time, there are certain limitations with this model. First, its development was based solely on the literature and existing theoretical models and has yet to be empirically tested. Second, the model focuses on using choice and information to deliver PCC in dentistry, but no measures have been prepared specifically to measure this. As such, it is difficult to establish whether the model can actually be used as an effective guide to adopt a PCC approach and how it might compare to existing models.

2.8 Developing a tool

Having decided on a model to use as a guide to explore possible practices of PCC in a dental setting, the next step is to consider potential tools for measuring PCC and enabling dentists to practice PCC. This investigation of the literature is motivated by the fact that if a tool assessing information and choice-giving to patients already exists, there will be little point in developing another one. A search of the literature was conducted to explore the availability and types of tools available that reportedly measure PCC in medicine and dentistry.

2.8.1 Types of tools

There are multiple tools to measure PCC that can be helpful for HCPs when assessing how patient-centred they are. The following section discusses issues with measurement, and the issues with measuring PCC can be summarised aptly by Epstein et al., (2005) as follows:

Problems in measuring PCC include lack of theoretical and conceptual clarity, unexamined assumptions, lack of adequate control for patient characteristics and social contexts, modest correlations between survey and observational measures, and overlap of PCC with other constructs (Epstein et al., 2005, pg.1).

While many benefits of PCC have been identified (Wahl et al., 2005, Stewart et al., 2000, Bertakis and Azari, 2011a, Stewart, 2001, Little et al., 2001b, Moran et al., 2008, Little et al., 2001a), a key issue that remains unaddressed is how to

appropriately measure PCC. It is critical to measure the patient-centeredness of the care delivered as well as the outcomes that result from delivering such care using reliable and valid measures. Patient-centred care measures should allow for clear comparison between studies, thus contributing to a solid empirical foundation, rather than speculation and theory alone, upon which healthcare providers can justify the efforts of adopting and implementing PCC. This empirical foundation is especially crucial to convince clinicians and policy-makers to dismiss the biomedical approach in favour of PCC, as it may be both more beneficial and more efficient for patients. As the previous section has demonstrated, PCC is a multi-dimensional concept, so the process of developing a measure for it is complex. The two types of measurement that have typically been used in the literature are i) doctor-patient perception of the patient-centeredness of the visit and ii) observational methods, including videotaping and analysing interactions. Given that the first group is more likely to be practical in terms of routine use in the dental surgery, this section explores work in this area.

Measurements of doctor-patient perceptions are usually performed through a questionnaire. Most available questionnaires are created particularly for primary care settings, including family and general medicine (Cegala et al., 1998, Galassi et al., 1992, Safran et al., 1998, Shi et al., 2001). Only two questionnaires have been created specifically for measuring PCC as a concept (Stewart et al., 2000, Little et al., 2001b). The other relevant questionnaires have been developed to gauge patient-doctor communication more generally, although they may include some items that are related to PCC.

The 'Patient Perception of Patient-centeredness' is the first questionnaire developed specifically to measure PCC (Stewart et al., 2000) and measures how patients perceive the patient-centeredness of their last family doctor visit. It is based on the Stewart et al., experiences in family medicine, on a literature review of studies regarding the general relationship between doctors and patients and on their previously established model (Stewart et al., 1995). This particular questionnaire has nine items that measure the *common ground* dimension of PCC. Four items assess *exploring both the disease and illness* dimension, and one item explores the *understanding the person as a whole* dimension.

The Consultation Care Measure is the second measure developed for PCC (Little et al., 2001b). This measure was also based on the Stewart et al.,’s (1995) model, a literature review, and incorporated patient interviews. This measure, similarly to the previous one, contains nine items in the *common ground* dimension. Six items can be classified under the *exploring both the disease and illness* dimension, two items under the *understanding the person as a whole* dimension and one item under the *patient-doctor relationship* dimension.

There are several challenges with these tools. First, they only evaluate general rather than specific behaviour. General behaviour, such as the HCP being ‘nice’, is harder to measure than specific behaviour, such as the HCP greeting the patient. Therefore, inconsistencies may arise between patients, as the general evaluations are inherently more subjective (e.g. Epstein et al., 2005). Second, these measures assume there is a ‘typical visit’, and it is unclear if dentistry lends itself to a ‘typical visit’. Third, these measures primarily target patients’ perceptions of a visit’s patient-centeredness rather than the HCPs’ perceptions or the visit’s actual patient-centeredness. This is problematic on occasion because the patient’s perception might not accurately reflect the actual patient-centeredness of the visit (Epstein et al., 2005). Finally, these two measures fail to consider information or choice-giving in a more practical way.

In view of these shortcomings, their use in the current research was dismissed.

In addition to the above measures, there are mainstream tools that evaluate PCC partly through assessing communication. Work examining the quality of these tools (Medical Communication Competence Scale, Patient-Doctor Interaction Scale, Patient reactions assessment, Primary Care Assessment Survey, General practice assessment survey, EUROPEP, Primary Care Assessment Tool, Patient Perceived Involvement in Care Scale, Consumer Assessment of Health Plans Survey) follows in Table 2.2, which lists some of the key questionnaires that measure the patient and HCP perceptions of one or all dimensions of PCC. The table specifies a description, the PCC dimension that was measured, the number of items (i.e. length) and the usefulness of each tool for practitioners. This serves as a basis for further critical examination and as a starting point for the development of a new tool.

Table 2. 2: *Tools measuring some or all dimensions of PCC*

Tool	Brief description of the tool	PCC dimensions measured	Number of items	Usefulness as a tool to assess practitioners
Patient Perception of Patient-Centeredness (PPPC)	For patient tool. Developed by Stewart et al., (2000) and measures patient perception of the patient-centeredness of the last family doctor visit. Developed based on a literature review of the doctor-patient relationship and on the Stewart et al., (1995) model.	Disease and illness experience; Whole person; Common ground.	14	Yes, particularly in family medicine
Consultation Care Measure (CCM)	For patient tool. Created by Little et al., (2001) and based on a literature review of the doctor-patient relationship, Stewart et al. model and patient interviews. Incorporates users' opinions when developing the tool by conducting interviews with the patient	Disease and illness experience, whole person, common ground, and patient-doctor relationship.	21	Yes, particularly practitioners in general medicine
Medical Communication Competence Scale (MCCS)	Patient and doctor version. Developed by Cegala et al., (1998). Focuses on the medical communication between the doctor and the patient and has two versions, one for the doctor and one for	Common ground, and patient-doctor relationship.	24 (doctor version) 40	Yes, but is not as focused as the previous two questionnaires, which were developed based on a model of

	the patient, which enables a comparison between the patient and doctor perceptions of the visit. Included items cover the four types of information exchange: information seeking, information giving, information verifying and socioemotional communication.		(patient version)	PCC. This one covers the communication in general rather than only in PCC.
Patient-Doctor Interaction Scale (PDIS)	For patient tool. Developed by Smith et al., (1984) and measures patient satisfaction with the doctor-patient interaction. The scale incorporates users' opinions when developing the tool via conducting interviews with the patient. It can be administered in person, on the telephone or via email (Bowman et al., 1992).	Whole person, and patient-doctor relationship	19	Yes, but it does not cover the common ground dimension; no questions about shared decision-making and choice.
Patient reactions assessment (PRA)	For patient tool. Developed by Galassi et al., (1992) to measure patient perception of patient-provider relationship.	Common ground and patient-doctor relationship.	15	Yes, but it does not clearly ask questions about how the patient

				wants to be involved in the decision-making.
Primary Care Assessment Survey (PCAS)	For patient tool. Developed by Safran et al., (1998) to measure the performance of primary care based on the IOM definition of primary care.	Disease and illness experience, whole person, common ground and patient-doctor relationship.	51	No, it is more useful to assess the performance of primary care centres in general, with some of the questions evaluating the performance of the practitioner. The tool is more in line with the Picker Institute's comprehensive definition of PCC.

General Practice Assessment Survey (GPSA)	For patient tool. Developed by Ramsay et al., (2000) to measure the quality of primary care services.	Disease and illness experience, whole person, common ground and patient-doctor relationship.	53	No, it is more useful to assess the performance of primary care centres in general, with some of the questions evaluating the performance of practitioner. It is more in line with the Picker Institute definition of PCC. It was developed based on the Primary Care Assessment Survey (PCAS) OR P-CAT.
EUROPEP	For patient tool developed by Grol et al., (2000) and used to evaluate general practices, but not on a visit basis rather (over the last 12 months). The tool has been used and validated in different countries and in different languages (Dagdeviren and Akturk, 2004, Milano et al., 2007).	Disease and illness experience, whole person, common ground and patient-doctor relationship.	23 22 (the revised version)	No, it is not visit-based. It could be more useful if adopted for a visit, not 12-month evaluation. Also, it had questions unrelated to practitioner at the end.

Primary Care Assessment Tool (PCAT)	For patient tool. The adult version developed by Shi et al., (2001) that is used as a measure of the quality of primary care services and validated in many different countries (Rocha et al., 2012)	Disease and illness experience, whole person, common ground and patient-doctor relationship.	74	No, even though some of the questions are relevant to practitioner. Most of the questions evaluate the performance of primary care service.
Patient Perceived Involvement in Care Scale (PICS)	For patient tool developed by Lerman et al., (1990). Used to assess patients' perceptions of their own behaviour and their doctors' behaviour in a visit.	Disease and illness experience and common ground	13	Yes, with the main focus on questions related to decision-making and information exchange.
Consumer Assessment of Health Plans Survey (CAHPS)	For patient tool. Developed to report back on the performance of different health plans. Main advantage is its wide use in the US, which could allow for comparison and identification of possible trends.	Disease and illness experience and common ground	31	Yes, but it is more useful to assess the performance of the practitioners in general, with only a few items that could be classified as PCC questions.

As is apparent in the table above, none of these measures has been developed for use in a dental setting, and no studies were found that have applied them specifically to a dental setting. Furthermore, all but two (Little et al., 2001b, Stewart et al., 2000) of these measures were developed to examine the communication between the doctor and the patient, or general performance of primary care centres or of specific doctors. Although these measures were not developed specifically to measure PCC, they often include items relevant to measuring certain PCC dimensions. For example, the item 'does your doctor know what problems are most important to you?' from the PCAT (Shi et al., 2001) can measure the *whole person* dimension of PCC. However, as these questionnaires were not originally developed to measure PCC, most items will be relevant only for the original purpose of the tool. Accordingly, this inclusion of PCC-irrelevant items signals the difficulty of incorporating the tool into the daily routine of practitioners due to the time-consuming nature of these long measures (Ramsay et al., 2000, Safran et al., 1998, Shi et al., 2001). While it is possible to shorten these instruments, such as when Rocha et al., (2012) developed a 10item version (PCAT10-AE) of the PCAT assessment tool, similar work has not been done to develop a short PCC-specific version of an existing tool. Overall, none of the existing tools is sufficient for measuring PCC in dental settings without further research and validation.

Other means of measuring PCC involve observational methods. These include analyses of video or audiotapes from consultations, which typically involve coding particular verbal behaviours determined to be representative of the PCC approach. The Roter interaction analysis system is an example of this method. It codes medical dialogue by counting how many times the doctor says particular words and how much of the consultation involve information exchange and patient activation (Roter and Larson, 2002). One criticism of this method is that the code definitions can be especially narrow or remarkably broad, which causes problems when coding the interaction (Sandvik et al., 2002). In other words, certain words and behaviours in patient-doctor interactions are difficult to appropriately group into the coding system. For example, Sandvik et al., (2002) found that there is no code to classify crying, although it was observed to be relevant in consultations. Narrow coding, meanwhile, includes how concepts such

as 'empathy' are defined in a narrow way, focused on verbal expressions and acknowledgement of the other emotions. Another criticism of these methods involves their validity. Mead and Bower (2002) have performed a review of observational studies that measure the patient-centeredness of the visit and the resulting outcomes in primary care settings. They have concluded that the internal and external validity of the studies examining this relationship between PCC and outcomes is insufficient. While these issues call into question the usefulness of observational methods, a benefit is that they can measure the actual patient-centeredness of a visit rather than the mere perceptions of either the doctor or the patient. Their lack of a practical and brief focus, however, makes them an unlikely tool to support dentists.

The Communication in Dental Settings Scale (CDSS) is one of the only measures of communication between the dentist and the patient in dentistry. It is an observational measure for the interaction between patient and dentist. It was created based on the theoretical model of dentist-patient communication (Newton and Brenneman, 1999) and consists of 13 items divided into three consultation phases. The opening phase includes four items, the examination and treatment phase includes six items and the closing phase includes three items. The items consist of a dentist's tasks during a consultation, such as preventative advice and information. Ratings are on a four-point scale, ranging from 0 (unacceptable) to 3 (good) (Newton & Brenneman, 1999). However, as with other observational tools, the CDSS has some inherent limitations regarding the validity of the measure itself and its applicability, such as the need for an observer to either use this tool to code in the consultation itself or watch a video-recording of the consultation and code it then. Both require time and effort. In addition, the observer will require training to ensure they correctly and accurately code the consultation.

Overall, most measures appear to have items that could be applicable to certain dimensions of PCC. However, there is seemingly a need for a tool with more specific items that apply particularly to PCC in dentistry and which has a practical focus.

2.9 Conclusion

Despite the increasing number of studies on the concept of patient-centeredness in the field of dentistry, the lack of a clear definition and the absence of guidelines for implementing PCC are still issues that might impact dentists' efforts in adopting the concept (Eriksen et al., 2008). Additionally, the few models and definitions of PCC presently found in dentistry cannot be generalised because their study populations have been too narrow and do not represent the average dental clinic patient. Many models are also based on general medical contexts, but dental clinics and dental visits differ from other medical visits (Sondell and Soderfeldt, 1997).

Dentists have no currently available tool for assessing how patient-centred they are during visits. The latest UK General Dental Council (GDC) standards for dental teams (GDC, 2005, GDC, 2013) has amplified the need for such a tool. Additionally, its development could also help dentists who do not currently practice PCC with adopting a PCC model by providing a clear, step-by-step guide to demonstrate its implementation in their daily routine.

2.10 Aims and objectives

The overall aim of this thesis is the development and validation of a self-reflection tool for dentists as a way of encouraging them to practice PCC in dental settings. The thesis specifies the following three major objectives:

- 1- To explore dentists' views and opinions on the Scambler and Asimakopoulou's (2014)² hierarchy of PCC as a theoretical framework for designing a tool for dentists
- 2- To gauge dental students' awareness of effective communication by having them assess the communication skills of a third party

² The updated version of the Asimakopoulou and Scambler (2013) hierarchy published to be used in dentistry

- 3- To develop and validate a PCC self-reflection tool that dentists can use to be more self-aware of how much choice and information they give to their patients

These are addressed through the following research questions:

1. What are dentists' views on the Scambler and Asimakopoulou (2014) hierarchy of PCC?
2. What are dentists' views on barriers to and facilitation of the adoption of the Scambler and Asimakopoulou (2014) hierarchy in a dental setting?
3. Are there significant differences between dental students' scoring of the communication skills of a dentist and that of a panel of experts?
4. Is a newly developed PCC self-evaluation tool for dentists, reliable and valid?

SUMMARY

The literature evidences that although there are broad themes shared between medicine and dentistry and between dentists themselves in relation to PCC, there is no universal definition or model. In addition, while dentists acknowledge the importance of PCC and the need to practice in a PCC way, there is little understanding of how this might be done and no uniform or coherent strategy. Having considered the various available models of PCC and tools for measuring it both in medical and dental settings and using the Scambler and Asimakopoulou (2014) model of PCC as a theoretical guide, this thesis sets forth to explore the development of a practical, concise and easy-to-use tool that can assist dentists in centring their practice on patients.

The remainder of this thesis describes the development of this tool.

Chapter 3: Methods

3.1 Introduction

For collecting the necessary data to answer the research questions in Chapter 2, and with the ultimate aim of developing a tool to aid dentists in practicing PCC in a consistent, flexible and coherent way, there are several approaches that could have been adopted.

To this end, this chapter describes the methods used to collect and analyse the data of the three studies on which this thesis reports. The chapter starts with a brief description of the employed paradigm and the reasons for selecting it in particular. Following this, it presents a discussion of the possible research designs and the advantages and disadvantages of each along with a justification of the mixed methods design used in the study. An overview of the three conducted studies follows, each containing a brief description of the methods adopted in the study. The details of each study's methods are noted under the relevant chapter.

This PhD thesis consists of three main studies and can be classified as an exploratory sequential mixed methods study. There are many other ways to design and describe a mixed methods study (Creswell, 2013, Doyle et al., 2009), and the level at which the integration of the qualitative and quantitative data occurs differs from one mixed method study to another (Fetters et al., 2013). Whether the quantitative study was informed or followed by a qualitative study has also differentiated mixed method studies (Morgan, 1998). Exploratory sequential design was deemed the most appropriate way of describing how this study has been conducted, for several reasons. In an exploratory sequential design study, qualitative data are collected first and then quantitative data are collected in a second phase, usually after the analysis of the qualitative data. Because the main aim of this thesis is the development of a short tool, the collection of qualitative data was needed to gather the opinions and experiences of the intended users of the tool. This is usually the first step in instrument

development unless there are already rich data available on the topic under study and the necessary information for generating the items (Hinkin et al., 1997), which was not the case with this study. In the next phase of this study, quantitative data were collected through questionnaires used to validate the tool. The thesis then adopts the paradigm promoted in previous work (Creswell, 2013), which suggests that an exploratory sequential design is the most appropriate design to use for a scale development study.

To summarise, this study uses qualitative interviews and an online survey to address the overall aim of developing and validating a self-reflection tool that dentists can use to be more self-aware of the amount of choice and information they give to their patients. In addition, a cross-sectional survey was conducted with dental students to examine their abilities to assess the communication skills of another dentist. This in turn could offer some insight into which areas of communication they are able to assess well and which they have trouble assessing.

3.2 Research paradigm

This study employed a practical, mixed methods approach to achieve its aim of improving the adoption of PCC in a dental setting. This means of conducting research can be classified as pragmatism (Creswell, 2013), a paradigm in which researchers can employ whichever method they find suitable and use it to answer their research questions. Researchers using a pragmatic research approach do not believe there is only one 'truth', unlike in positivism and post-positivism paradigms. These paradigms posit that a research question should be answered by collecting 'objective' data through quantitative methods. Thus, the researcher is viewed as an objective observer who usually utilises a large amount of data to allow for generalisations by ensuring the recruitment of a sufficient sample that is representative of the population under study. The 'unbiased' researcher analyses these data, studying and examining it with unbiased eyes, and removes himself or herself from it to avoid influencing the analytical process (Johnson et al., 2007, Mackenzie and Knipe, 2006).

The paradigm that is usually considered the opposite of a positivist approach to research is the constructivist/interpretivist paradigm, which focuses on using qualitative methods to understand the subjective experience of study participants or the researcher's own interpretations of the context or the people studied (Mackenzie and Knipe, 2006, Creswell, 2013). Constructivism/interpretivism do not agree with the view that there is only one 'truth' and instead accept that there are 'different' truths, as many realities are individually constructed by people based on their experiences (Ponterotto, 2005). Therefore, they seek to understand the subjective meaning that individuals develop as being affected by multiple factors, such as culture or place of work (Chen et al., 2011). In addition, this approach considers how researchers and their backgrounds might influence how they interpret information as well as how their interactions with participants might influence the researcher, in addition to the analysis of the data collected (Teddlie and Tashakkori, 2009).

Pragmatism, on the other hand, is an approach that offers researchers the discretion to employ whichever method they deem suitable to solve or understand the problem at hand. This removes the restraints of the other paradigms, which might lead to a partial picture of the topic of study due to the usage of one method that is viewed as the ideal way to answer a research question (Feilzer, 2010).

Pragmatism is usually considered to be the underlying paradigm in mixed methods research (Creswell, 2013, Johnson and Onwuegbuzie, 2004).

Incorporating both qualitative and quantitative methods to collect and analyse the data takes advantage of the strengths of both methods in order to answer the research questions. It also prioritises finding a solution to the problem under study rather than determining which method should be used to solve it (Hanson et al., 2005), and thus combines and utilises the various methods available to arrive at a comprehensive view or to counter certain limitations of one method by adding another. This approach to research design enables the researcher to employ different approaches to uncover the multiple layers of the problem (Doyle et al., 2009). There is another paradigm that is sometimes associated with mixed method design: the transformative paradigm, usually associated with studies interested in social injustice that concern topics such as feminism (Teddlie and Tashakkori, 2009). The pragmatic paradigm fits this study better, mostly by

allowing researchers to choose both quantitative and qualitative methods ensures they can use whichever method they deem suitable for answering the research question (Johnson and Onwuegbuzie, 2004).

3.3 Research design

3.3.1 Qualitative research

Qualitative research is mainly conducted to understand and examine peoples' values, opinions or behaviours by employing a number of methods (Kitto et al., 2008). These methods include the following: taking field notes through observations, conducting interviews, and analysing images, documents or diaries (Anderson, 2010). Each of these methods could achieve unique aims. For example, interviews are generally conducted to acquire data on issues that are personal to people, such as motivations for certain behaviours, their opinions or views on certain topics and so on. Furthermore, interviews can obtain information on people's feelings as well as knowledge (Britten, 1995). On the other hand, observational methods are usually adopted to determine how a sample interacts in their natural setting without incorporating any stimulus or intervention, unless the study aim calls for such interventions (Mays and Pope, 1995).

Creswell and Poth (2017) have suggested there are five main approaches to qualitative research: narrative research, phenomenology, grounded theory, ethnography and case studies. Regardless of which approach is used, the underlying aim of qualitative research is to understand, describe and examine the world as people see and experience it (Ritchie et al., 2013). This type of research poses a number of advantages and disadvantages. One advantage of conducting this type of research is that the method allows researchers to get in-depth information on people's thoughts, beliefs, opinions and ways of life (Sofaer, 1999), through either observing people directly or interviewing them.

In addition to being used on its own to view the world as it is understood by different people, qualitative methods can be helpful for comprehending some of the unexpected results of a quantitative study (Morgan, 1998). For example, if a group of participants in a cross-sectional survey have reported feeling a high level of distress when engaging in an activity that did not require such feeling of

distress, qualitative interviews could follow to investigate possible underlying reasons for experiencing such feelings. Alternately, it could be that a quantitative study assesses people's dental fear by e.g. using a standardised dental fear measure, but then uses qualitative methods to ascertain the exact site of the fear. Qualitative studies can also inform the development of an instrument to ensure that it is reflective of participants' views and important issues. However, despite these advantages, several disadvantages exist. Conducting interviews, for example, requires considerable spending in relation to the time and money needed to recruit, conduct and analyse the data. Some qualitative approaches, such as ethnographic studies, have commonly been carried out over a long period of time. This enables the researcher to immerse himself or herself in the culture under study in order to understand it and report on this understanding. Moreover, conducting qualitative studies requires some training of the researcher. Interviews or observations demand certain techniques to be learned that are both technical and non-technical, such as how to handle sensitive topics, ask questions in a non-leading manner, analyse transcripts and so on (Ritchie et al., 2013).

Qualitative research sampling and participant selection is drastically different from those processes in quantitative methods (Marshall, 1996). The very nature of qualitative research negates the need for a randomised sample; the qualitative researcher is generally interested in people's unique experiences or perceptions, and randomisation is not recommended in view of the diversity of people in a population in relation to their thoughts, beliefs and views. Therefore, it is not possible or is particularly difficult to ascertain if the insights from an interview discussion with one person can be generalised to others. As such, qualitative research often features small and purposefully selected samples.

The following table summarises the main qualitative approaches, based on (Creswell and Poth, 2017), and presents basic information on the aim and methods that are commonly associated with each approach.

Table 3. 1: *The five main qualitative approaches and their aims and data collection methods*

Approach	Aim	Methods of data collection used
Narrative research	This is interested in people's life stories that are told either by the people themselves or through documents. The researcher usually arranges the story in a coherent way, organised by time or events, occasionally with some help from the storyteller (Moen, 2006). Narrative research can help 'gain insight into the way human beings understand and enact their lives through stories' (Sandelowski 1991, pg.163).	Documents Interviews
Phenomenology	This approach is interested in the experiences and meanings of participants regarding certain phenomena or life events (Morse and Field, 1995, Aspers, 2009).	Interviews, participants' observations
Grounded theory	The main aim of grounded theory research is the generation of new theory by analysing the data available using an inductive approach. The aim is for the information to generate the theory with minimum or ideally no effects of any preconceived idea from the researchers involved in the analysis (Strauss and Corbin, 1994).	Interviews
Ethnography	This approach is essentially applied to describe and understand a	Observations, interviews

	culture. The culture could refer to a particular ethnic group or to a community of people in an office (Lambert et al., 2011).	
Case study	The main objective of this approach is to investigate a phenomenon (either a case or multiple cases) in depth (Crowe et al., 2011, Hyett et al., 2014).	Interviews, observations, documents

Phenomenology:

From the five approaches that Creswell and Poth (2017) have proposed, this study has selected phenomenology as its qualitative approach. This approach is appropriate because it is mainly interested in studying and understanding people's experiences and the ways in which they interpret and make sense of the world around them (Davidsen, 2013). Since this study examines understandings and views among dentists of the concept of PCC and its applicability to dentistry, a phenomenological approach is the most suitable choice. None of the other approaches can support the aim of the study as strongly as phenomenology can. Grounded theory was initially considered, for example, but was found to not be the best approach because it contributes primarily to developing a theory based on interviews or focus groups with participants. Since this was not the main objective of the study, this option was discarded. Narrative research, ethnography and case study were also unsuitable approaches for this study, as narrative research tells a participant's story, ethnography examines a particular culture or group of people and case study focuses on a small number of particular cases to analyse them in depth. Phenomenology, on the other hand, emphasises how people experience the world in which they live rather than the degree of objectivity or reality of this world (Laverty, 2003). This approach is commonly used to understand individual perspectives of a phenomenon or event (Barnard et al., 1999). In order to develop a tool with which dentists can self-reflect on their patient-centredness during a visit, it is important to comprehend the meaning of PCC for these dentists as well as how they can – and should – practice it in dental settings. This knowledge can ensure that the tool includes items that the dentists

themselves find meaningful and essential to the concept of PCC and its practice. If the tool differs vastly from their view of the concept and its ideal implementation, it is highly possible that the intended audience – dentists, in this case – will be resistant to utilising such a tool (Keszei et al., 2010).

As a qualitative approach, phenomenology acknowledges the need to engage in reflection to identify and minimise one's own biases in order to avoid imposing them on the analysis and data interpretation. At the very least, a researcher must recognise that these biases are present and could affect how he or she handles and collects data (Laverty, 2003). This process is commonly referred to as 'bracketing' and is an essential characteristic of phenomenological research (Laverty, 2003, Starks and Trinidad, 2007). Although such bracketing was attempted in this study, the researcher acknowledges that complete objectivity is nearly impossible; therefore, although the reflexivity section in Chapter 4 acknowledges these issues, the researcher has ultimately decided to follow more recent opinions that the complete removal of biases, which earlier practices of phenomenology have encouraged, is not possible (Lester, 1999). Consequently, the researcher does not make such a claim of objectivity in this study.

With regard to the method that corresponds or is frequently associated with this qualitative approach, phenomenological research can employ a variety of methods, although interviews and participant observation are among the most common (Lester, 1999). This study has selected interviews as its research method.

This study has adopted the guidelines of Ritchie et al., (2013), which present a detailed, step-by-step plan for qualitative data analysis. Ritchie et al., (2013) have not classified their methods of analysis under one of the five common approaches of qualitative research that Creswell and Poth (2017) have categorised; instead, they have stated that their approach 'borrows' from multiple traditions that exist in the field of social research. Their approach to qualitative data analysis could be reflective of general inductive research analysis (Thomas, 2006). Although Ritchie et al., (2013) have clearly articulated and effectively justified their stance, it was deemed favourable for the present study to select and adhere to one of the five approaches, as this could provide guidance and a point of reference for this study within the wider field of qualitative research. Moreover, it could ensure a

degree of structure with regard to participant selection and engagement, question formulation and interview analysis. Specifying an approach can more clearly convey the basic assumptions that underline the study based on such an approach (Baker et al., 1992).

Finally, although a phenomenological approach was selected to guide the first study, it was applied with some flexibility, and the approach served more as a guideline than as precise instructions that guided all decisions in relation to data collection and analysis. Also, a guide to data analysis from Ritchie et al., (2013) was used and, as mentioned earlier, their approach to data analysis was not classified under one of the traditional approaches to qualitative studies.

In conclusion, qualitative research is evidently beneficial and can provide insight into people's experiences and interpretations of events that happen to or around them. The main disadvantage, however, is that qualitative findings tend not to be generalisable and cannot, with the exception of a few cases, be used to infer causation. Rather, a qualitative approach offers a rich exploration of the collected data, which is crucial when the aim of the research is to thoroughly understand a topic.

3.3.2 Quantitative research

Quantitative studies are generally conducted for a number of reasons, including to gauge the prevalence of certain diseases, characteristics and demographic information, among other information. These studies could be useful for examining the relationship between two variables to determine if there is causation, usually assessed using an experimental study design, or if there is an association between two variables, which is commonly evaluated through a descriptive design (Johnson, 2001, Bowling, 2014). In dentistry, for example, a quantitative study might measure a patient's satisfaction with a consultation in numeric terms, whereby high scores indicate high satisfaction using a standardised measure.

Quantitative methods can guide data collection in many ways, including through the following: administering surveys, performing clinical trials or experiments, quantifying data from databases, quantifying and recording observed events and

conducting structured interviews. A survey, which is the most common type of quantitative study, often includes close-ended questions, such as '*did you visit the dental clinic in the last two months?*', which are quantity questions that ask for a specific number of times that a particular event or act has occurred, usually within a specific timeframe. There are also questions that prompt respondents to select one or more options from a list in the questionnaire. In addition, there are *category type* questions which necessitate respondents to select one category, such as age. Finally, there are ranking questions and scale questions, which are among the most widely used types of questions (i.e. Likert scale) (Marshall, 2005).

Quantitative studies yield many benefits, as this type of method allows for generalisability while still taking into consideration the design that was used and any biases that might hinder this generalisability (Polit and Beck, 2010). Compared to a qualitative study, a quantitative study typically requires less time and permits the collection of a large set of data in a relatively short period of time (Johnson and Onwuegbuzie, 2004). Analysing quantitative data is considerably less time consuming than analysing qualitative data since a variety of software is available to researchers to quickly and accurately analyse large datasets. Although there are many advantages to quantitative research, this type of research method does present some issues. Use of surveys may allow for generalisability and could potentially provide substantial data, but it precludes any in-depth analysis. Additionally, quantitative methods such as clinical trials have rigid and specific inclusion criteria, which is necessary but means that beyond those who are compatible with such narrow inclusion criteria, the results are not relevant without further testing (Tunis et al., 2003).

3.3.3 Mixed methods approach

Mixed methods research has been defined as

the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research. (Creswell et al., 2003, pg. 212)

A mixed methods approach is ideal for this study because the main aim of this thesis is to develop a PCC tool for dentists. The qualitative phase was imperative in view of the scarcity of research on the concept of PCC in dentistry (Mills et al., 2014) and the need to collect opinions from the intended audience – dentists, in this case – before commencing the development process (Creswell, 2013, Streiner et al., 2014).

There are many reasons to utilise a mixed methods approach (Creswell, 2013). Doyle et al., (2009) have identified some of these common justifications or rationales, which include triangulation, completeness, offsetting weaknesses and providing stronger inferences, answering different research questions, explaining findings, illustrating data, and developing and testing hypotheses and instruments. Other researchers, such as Palinkas et al., (2011), have specified the following functions of mixed methods research: convergence, complementarity, development, expansion and sampling. Furthermore, Greene et al., (1989) have presented a similar classification in terms of triangulation, complementarity, development, expansion and initiation. The classification by Palinkas et al., (2011) categorises instrument development under ‘development’, which they have described as ‘Using one type of method to answer questions that will enable use of the other method to answer other questions (e.g., develop data collection measures, conceptual models or interventions)’ (Palinkas et al., 2011, pg. 3).

Instrument development was the central motivation for selecting a mixed methods design. Thus, according to the aforementioned classifications (Palinkas et al., 2011, Doyle et al., 2009), the justification for this approach is to fulfil ‘development’ purposes. As for selecting a particular mixed methods design from the variety of possibilities, many classifications have been suggested for designing a mixed method study. Differences in classification usually stem from the factors which were identified and included in the generation of each design; the timing of the two methods, for example, is a commonly considered element (Creswell and Plano Clark, 2007, Leech and Onwuegbuzie, 2009). Some typologies, such as that of Creswell and Plano Clark (2007), also take into account the reason for mixing the methods. Others, such as the Morse (2003) classification, consider the emphasis on one method as well as the theory driving

the mixed methods study based on the 'core' method that is selected. Mixed methods typologies have frequently used more than one factor to classify potential mixed methods designs (Leech and Onwuegbuzie, 2009, Creswell et al., 2013, Tashakkori and Teddlie, 2010), which improves the accuracy of the designs.

Notably, although the Greene et al., (1989) classification arguably classify mixed methods designs (Plano Clark et al., 2008, Tashakkori and Teddlie, 2010), this thesis interprets it as primarily classifying the reason for conducting a mixed methods study rather than as a framework for designing a mixed methods study. Creswell and Plano Clark (2007) have proposed one classification of mixed methods designs. Their typology suggests four types of designs for mixed methods studies, namely concurrent, embedded, explanatory sequential and exploratory sequential. In a concurrent design, which might be referred to as triangulation or parallel, qualitative and quantitative data are collected simultaneously but analysed separately. However, the analysis results are eventually integrated in the results or discussion section. In an explanatory sequential design, quantitative data are collected and analysed first, then the qualitative phase follows. This design typically stresses the quantitative phase, and the qualitative phase elaborates on the results of the quantitative phase – for example, to explain any outliers – with the sample often being a sub-sample from the quantitative phase. In an exploratory sequential design, qualitative data are collected and analysed first. The quantitative phase then informs the subsequent quantitative phase. This design is often applied to develop a new instrument in cases where the literature does not offer sufficient information on the topic of study or the topic has not been explored with a particular sample. This design can also assess whether qualitative findings, such as those deriving from a survey, could be generalised to a larger sample in the quantitative phase. As for the embedded design, it involves either a quantitative or a qualitative study. Most commonly, it entails a quantitative study with a smaller study, usually qualitative, embedded within it. This design is popular among clinical trial studies, which feature a large quantitative study with at least one qualitative component embedded within it to improve or clarify certain parts of the experiment or its implementation (Creswell and Zhang, 2009). Creswell et al., (2003) have elaborated further on this classification by suggesting the following six designs

for mixed methods studies: sequential explanatory, sequential exploratory, sequential transformative, concurrent triangulation, concurrent nested and concurrent transformative. This study has used this classification as a guide.

This thesis has adopted an exploratory sequential design. This design involves the collection and analysis of qualitative data first and quantitative data second (Creswell et al., 2013). As the name suggests, the design begins with the exploratory part, which it achieves through qualitative means, before moving to the development phase, which engages with findings from the qualitative phase (Palinkas et al., 2011).

A representation of this particular study design (exploratory sequential) (Tashakkori. and Teddlie, 2010, Creswell et al., 2013) using arrows and abbreviations would be written as follows:

QUAL  **quan**

The capitalisation of one method denotes an unequal emphasis (Tashakkori. and Teddlie, 2010). Here, it indicates that more stress was placed on the qualitative part of the study.

In addition to the Creswell et al., (2003) typology employed in this research and the other typologies that have been described, such as that of Creswell and Zhang (2009), many other typologies are available. One example derives from Leech and Onwuegbuzie (2009), who have developed a typology for mixed methods that considers three dimensions which affect the design. The first dimension concerns the mixing of the two approaches (qualitative and quantitative) and whether it is a full or partial mix. The second dimension regards the timing, such as whether the qualitative and qualitative phases occurred concurrently or sequentially. Finally, the third dimension emphasises approaches, and particularly whether one approach was dominant or if both approaches received equal emphasis. Leech and Onwuegbuzie (2009) have referred to this dimension as 'equal status versus dominant status'. This typology results in eight mixed methods study designs: partially mixed concurrent equal status design, partially mixed concurrent dominant status design, partially mixed sequential equal status design, partially mixed sequential dominant status design, fully mixed concurrent equal status design, fully mixed concurrent

dominant status design, fully mixed sequential equal status design and fully mixed sequential dominant status design. This typology would describe the present study as having a partially mixed sequential dominant status design.

Beyond the aforementioned typologies, certain models have been more popular in specific research areas. For example, an article by Creswell et al., (2004) has examined the diversity of mixed methods research in primary care and identified three main models that could be useful in such settings and may 'add rigor' to mixed methods research. The first of the three models is the instrument design model, which this study has used. In this design, the researcher begins with the qualitative part of the study and then follows it with the quantitative part. The two phases are integrated at the data analysis stage, at which point the qualitative study results inform the development of the instrument. The second model is the triangulation design model, which Creswell et al., (2004) have noted is pervasive in primary care research. This model involves simultaneous qualitative and quantitative phases, and it aims to triangulate the two types of data in order to better understand the issue under examination. The integration usually occurs in the results, discussion or conclusion. Each type of data is used to confirm or contrast with the other, or in some cases, one type of data is converted into the other type. In the third and final model, namely the data transformation design model, the researcher typically collects and analyses the qualitative data and then numerically counts the codes and themes. Alternately, it could also use qualitative techniques to transform quantitative data (Creswell et al., 2004, Palinkas et al., 2011). Evidently, this classification has been adopted from the common classifications described in this section, although it was tailored slightly for the primary care research.

As for the data analysis, because this is a sequential type of mixed method, a sequential data analytical approach was used in which analysis of the two approaches (qualitative and quantitative) occurs in two phases. The purpose of the mixing in sequential analytical design is to inform rather than to integrate the findings of the two methods together (Ostlund et al., 2011). The other two types of data analysis are parallel data analysis and concurrent data analysis. In the former, the quantitative and qualitative data are collected and analysed at the same time, but they are not compared until the analysis is complete. The latter, on the other hand, involves integration of the data at the analysis stage, when

one of the data sets (e.g. qualitative) is usually converted into the other data set, for example when quantising qualitative data.

In conclusion, researchers should consider the following key criteria when designing and implementing mixed methods research: the reason for conducting mixed methods research, the types of data that are collected, whether qualitative research or quantitative research takes priority, the sequence of each study (i.e. qualitative phase then quantitative phase, or vice versa) and, finally, the phase at which the integration of the two methods occurs (Borkan, 2004, Creswell et al., 2004). The two methods can be integrated during research question formulation, sample selection, or data collection or analysis.

As mentioned, using qualitative data to guide tool development can be helpful, especially for gathering the views and preferences of people who are involved (Curry et al., 2009). Moreover, if used correctly, it can increase the quality of the tool (Rowan and Wulff, 2007). Curry et al., (2013) have suggested that instrument development is a main area for which the use of mixed methods is suitable.

3.3.4 General methods of the current study

In this study, the process started with qualitatively collecting dentists' opinions on a hierarchy of PCC and its applicability in a dental setting. Based on their views, a first draft of a PCC tool was developed. This initial draft was presented to a group of dental public health MSc students, who were asked to provide qualitative feedback on the wording of the tool and its design. The tool was then sent to expert dentists for a formal quantitative assessment of the relevance and representativeness of each proposed item, among other criteria, in order to assess the content validity of the developed tool. The tool further benefitted from the feedback of dental students who quantitatively assessed the stability (test-retest reliability) of the developed tool as well as its criterion validity.

Building on this approach, the research presented herein centres on three studies. The first study reports on dentists' views of PCC and a specific model of PCC, and used semi-structured interviews. The second study involved a crosssectional survey to assess dental students' perceptions of good communication, and the third study was a tool development study to assess a

newly developed PCC tool on reliability and validity, primarily relying on quantitative methods. The next section presents details of these studies.

3.4 Overview of the studies

In the following section, a brief description of the methods is presented, which includes basic information on the design, participants, setting, materials used, and the procedure of each one of the studies. More details on the exact methods are provided under each respective chapter.

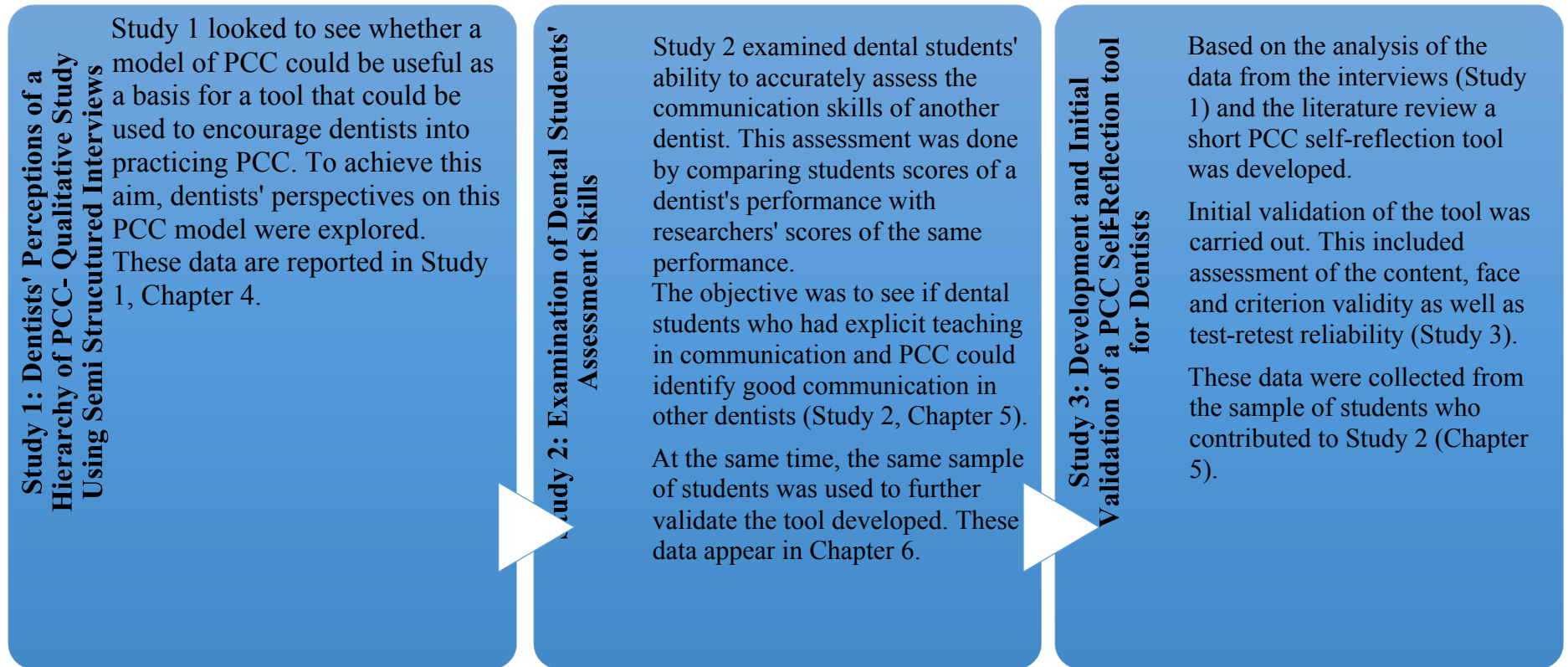


Figure 3.1: Overview of the studies

The next section elaborates on the methods of each study.

3.4.1 Study 1: Dentists' Perceptions of a Hierarchy of Patient-Centred Care: Qualitative Study Using Semi-Structured Interviews

Design: Semi-structured interviews

Participants: Twenty dentists with clinical teaching responsibilities at a dental school in London. The decision to include 20 participants was based on several reasons, which are briefly addressed here; however, the methods section of Chapter 4 offers more details regarding sample size and participant selection. When initially considering the required number of participants, a literature review on the number of interviews was the first step. This review indicated that multiple studies with the same research design as the present study have used a sample size of 20 participants and found it sufficient for the purpose of instrument development. Studies by Canales and Rakowski (2006) and Kutner et al., (1999) have engaged with a similar number of participants, although the participant total of 22 was slightly higher in the Kutner et al., (1999) study. Canales and Rakowski (2006) study have conducted 20 interviews in their study. While Nutting et al., (2002) study recruited 18 participants to aid in the development of an instrument. In addition to consulting the literature for similar studies and their sample sizes, the suitable number of participants for a phenomenological study was investigated. One guideline by Creswell et al., (2013) has suggested that a phenomenological approach should use a sample size that is between 5 and 25. After considering other factors, such as the sample size in (Asimakopoulou et al., 2014, Scambler et al., 2014), a sample size of 20 was deemed appropriate for this study.

Settings: Dental Institute, King's College London

Instruments: A topic guide was used in this study. The guide was developed following discussion between the three researchers and some suggestions of modifications.

To help describe the PCC hierarchy and to stimulate the discussion, the hierarchy figure was employed in the interviews.

Analysis: Thematic analysis was performed to assess the data, and Nvivo software aided in the organisation of the data. The approach to thematic analysis was the one suggested by Ritchie et al., (2013), which involves two key processes: 1. Data management and 2. Data abstraction and interpretation.

3.4.2 Study 2: Examination of Dental Students' Assessment of Communication Skills Using a Medical Communication Competence Scale

Design: Cross-sectional survey study

Participants: Fifty-six dental students in their third, fourth, or fifth year of study at the Dental Institute, King's College London. An invitation was sent to all undergraduate students in their third, fourth or fifth year of study. A filtering process yielded 56 usable responses (see Chapter 5). The literature and statistical guides suggest that this number is sufficient for the type of test that this study uses, namely the t-test. In fact, some researchers have considered a sample size as small as five to be acceptable for a one-sample t-test (De Winter, 2013, Lehmann, 2012). Furthermore, a study which is similar to the present study in its aim to develop an instrument through an exploratory mixed methods design (Kutner et al., 1999) has used the same sample size of 56 to compare the mean of the study population with the mean of the average U.S. citizen. The t-test was developed and is best suited to samples fewer than 60, or even near 30 (Swinscow, and Campbell, 2002). The methods section in Chapter 5 contains more information about the sample and selected population.

Settings: This was an online study which employed Qualtrics software to collect the data from students.

Instruments: The study used a quantitative survey (Medical Communication Competence Scale) to assess dental students' assessment abilities. The data collected were all quantitative and based on a Likert scale.

Analysis: Descriptive and inferential statistics were employed for data analysis.

3.4.3 Study 3: Development and initial validation of a PCC self-reflection tool for dentists

Design: The purpose of the third study in this thesis was the development and validation of a self-reflection tool through which dentists can become more aware of the amount of choice they encourage and information they share with their patients during different visits. This study is divided into two parts: the generation of items for the tool and validation of the tool.

Participants: Since this study has more than one type of validity and reliability assessment, and each assessment has its own sample, this section provides only a general overview. Chapter 6 presents more details under the relevant sections regarding sampling decisions and justifications. The aim of the third study was to develop and validate a PCC self-reflection tool for dentists. To ensure that the sample size was adequate for the various validity tests, similar studies were identified to gain insight into the sample size and to determine whether these studies could serve as references for the present research. Furthermore, statistical books and articles were reviewed to examine the acceptable sample size for such study (Swinscow, and Campbell, 2002, Streiner et al., 2014, Chalder et al., 1993). The main issue was that the PCC self-reflection tool to develop could not be classified as a typical test or measure that can use common psychometric assessments, such as factor analysis, because the tool was designed to be a checklist rather than a test with a summation of scores or ratings. This dilemma complicated the calculation of an exact sample size, particularly because most of these tests suggested recruiting a sample size based on the 'item-participant ratio' (Anthoine et al., 2014). This method of calculating the sample size would be difficult to employ for this study since the tool that it has developed asks respondents to either select one item from the two which are presented or to check whether the item applies to the visit. This is not typical of other instruments, as most ask respondents to provide an answer or rating for each item. The other method that was used to calculate the sample size was to estimate the necessary sample based on the expected outcomes, such

as the anticipated percentage of prevalence of a certain phenomenon or disease (McDowell, 2006), that have resulted from similar studies. This prevalence is difficult to calculate since no similar studies were found that have examined dentists' self-reflection on their patient-centredness during a visit. Nevertheless, effort was made to estimate an acceptable sample size for the validity and reliability assessments. With respect to content validity, since the same concept is applicable to any type of tool, no issue was found in relation to sample selection and sample size; please see sections 6.7.2 and 6.7.3 for further details.

For the test-retest reliability, a number of studies with the same aim of instrument development and validation were found to have used a similar sample to the determined sample of 25. One example is a study by Edvardsson et al., (2010) which has reported on the development and initial testing of a self-reported person-centred care assessment tool (P-CAT) for long-term aged care staff. This study has utilised a sample size of 26 to assess the test-retest reliability, and it should be noted that the developed tool consists of 13 items in its final version. In addition to Edvardsson et al., (2010), another study has been conducted concerning the validation of the Spanish version of the Patient Assessment of Chronic Illness Care (PACIC) survey, which is a 20-item self-reported survey with which chronically ill patients can assess the patient-centred quality of their care. This study used 20 patients to assess the test-retest reliability of the tool (Aragones et al., 2008). As for the criterion validity, although the sample size of 56 might be considered small, this sample is acceptable, another study that have developed and initially validated a self-reflection scale have used sample that are similar to that of the present study (Wittich et al., 2010). Chapter 6 offers more information on the sampling of the validity and reliability assessments.

Setting: Dental Institute, King's College London and online

Instrument: The tool was developed as a result of dentists' views of the Scambler and Asimakopoulou (2014) PCC hierarchy and a thorough search of the literature for key items. Several refinements of the initial items took place, resulting in a brief tool that was assessed for test-retest reliability, face validity, content validity

and criterion validity. This part of the study relied both on qualitative and quantitative methods.

Analysis: Quantitative analyses of participant responses as well as qualitative analyses of comments on the usability of tool items

The chapters that follow describe each of these studies in greater detail.

Chapter 4: Dentists' Perceptions of a Hierarchy of Patient-Centred Care: Qualitative Study Using Semi-Structured Interviews

4.1 Introduction

As the literature review has demonstrated, the current evidence suggests that there is no shared definition of PCC or how to practice it in dentistry. Moreover, the limited research with dentists on their understandings of PCC and the extent to which they adhere to PCC principles in their day-to-day practices has indicated that a general view of PCC equates it with being nice to the patient, showing empathy and giving patients the 'illusion' of choice, with the final goal usually being to increase the compliance of patients with the treatment recommended by the dentist (Asimakopoulou et al., 2014, Scambler et al., 2014). Although some dentists in the reviewed qualitative work cited core dimensions of PCC, such as taking patient preferences into account and involving them in the decision-making process, (Asimakopoulou et al., 2014, Scambler et al., 2014) this was not widely encountered.

At the same time, although there are several models of PCC, there is currently no work that has revealed dentists' opinions of these models in terms of their perceived relevance to their day-to-day practices.

Since the reason for conducting this research was to develop a tool to help dentists embrace the delivery of PCC in a practical way, it was decided that in order for such a tool to be meaningful and appropriate for dentists, it would be necessary to understand their views of PCC by consulting the proposed theoretical model of Scambler and Asimakopoulou (2014) as a theoretical reference point. The Scambler and Asimakopoulou (2014) hierarchy appears in figure 4.1 below.

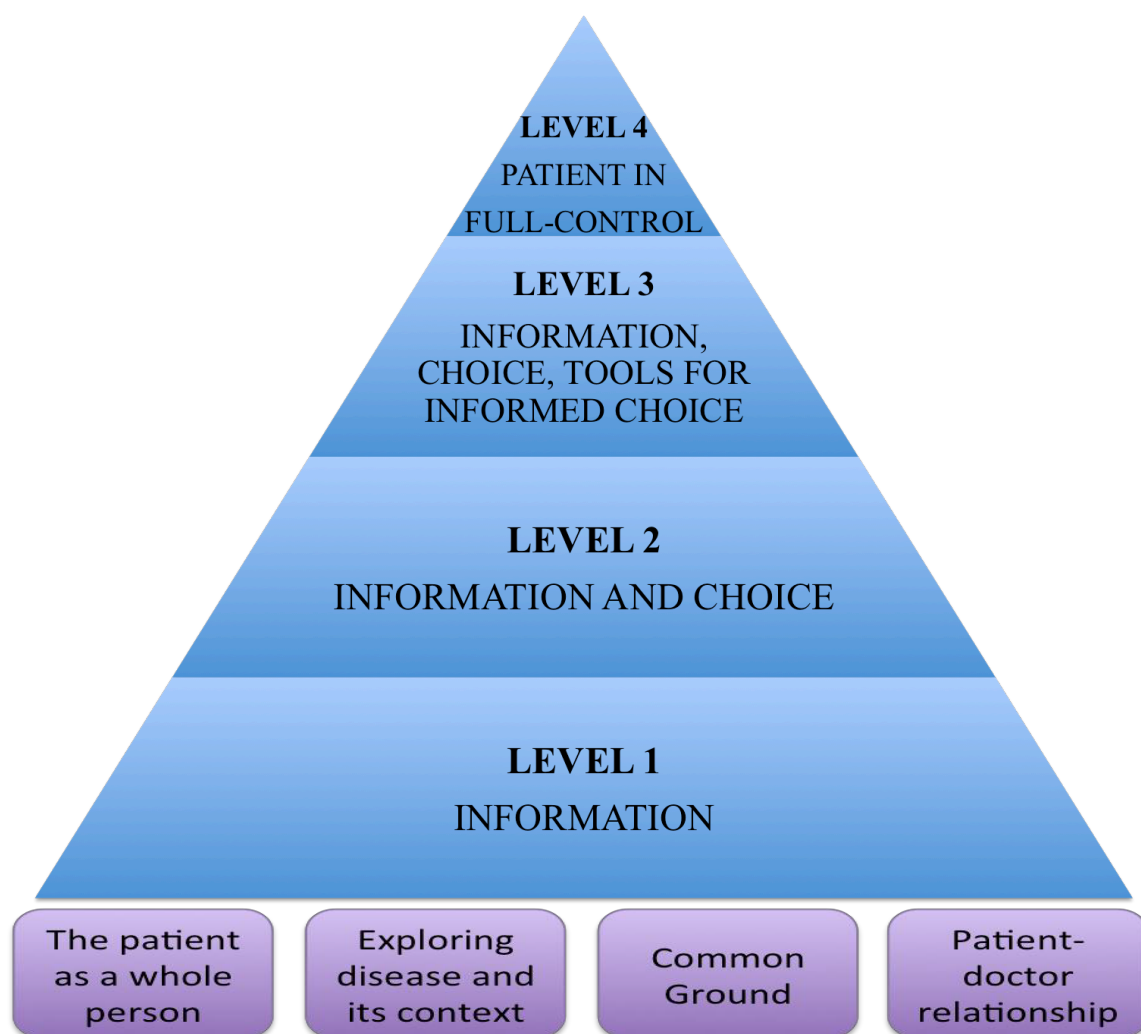


Figure 4. 1: Scambler and Asimakopoulou's hierarchy of PCC (adopted with slight changes in the style from Scambler and Asimakopoulou's et al., (2014))

This present chapter then accepts that with no currently agreed upon definition of PCC and no universally accepted model of PCC, the practice of PCC in a dental setting may well be guided by the concepts of information and choice, as presented in the Scambler and Asimakopoulou (2014) model of PCC. However, since the model has not been empirically tested, it was necessary to examine the views of those whom this research seeks to help use it, hoping that their insights would identify areas in need of further development. The overarching objective of conducting these interviews and learning dentists' views and opinions on the selected model of PCC was to develop a tool that might eventually help dentists become more familiar with the concept of PCC, and hopefully utilise it more with their patients.

The first stage of this process was to consolidate research on dentists' understandings and practices of PCC and to explore their feelings about the hierarchy of PCC as the theoretical framework for this research.

This chapter presents the results of the first study, which performed semi-structured interviews with 20 dentists in which they were asked to comment on a hierarchy of PCC and its applicability to dentistry. Participants were asked to reflect on their own understandings and practices of PCC before commenting specifically on the hierarchy and on the potential utility of developing a tool based on it.

4.2 Aim

The aim of this study is to explore dentists' views and opinions on the Scambler and Asimakopoulou's (2014) hierarchy of PCC as a theoretical framework to use in designing a tool for dentists

4.2.1 Research questions

Main questions:

1. What are dentists' views on the Scambler and Asimakopoulou (2014) hierarchy of PCC?
2. What are dentists' views on barriers to and facilitation of the adoption of the Scambler and Asimakopoulou (2014) hierarchy in a dental setting?

Acquiring dentists' views and opinions on the hierarchy should be helpful for developing insight into the acceptability of this model directly from the targeted audience. Asking dentists to comment on the ideal level and the least useful or impractical level of this model should provide knowledge of which types of barriers and facilitators they find important in practicing PCC according to the information and choice factors that the model postulates.

4.3 Methods

4.3.1 Participant selection

The study population was dentists teaching at Guy's Hospital, King's College London. The inclusion criteria were practicing dentists with teaching responsibilities at King's College London.

Guy's Hospital was chosen as the main site primarily because it is a teaching hospital, so the dentists practicing there are likely to be more exposed not only to teaching but also to academic research. This should have increased both the likelihood of their exposure to the concept of PCC and their willingness to participate in research. The hospital was also selected because it is part of an active research grouping (King's health partnership) and, as such, the dentists working there may have been more inclined to participate in the research. Of course, it was also a convenient location for this research. It should be noted that some of the dentists who were interviewed were practicing at other clinics but would visit Guy's Hospital weekly to teach, so some of the interviews were consequently conducted outside Guy's Hospital.

Because the aim of this study is to explore dentists' views of the hierarchy in order to develop an appropriate tool, it was essential to obtain opinions and experiences of dentists who are knowledgeable of the concept of PCC. Therefore, the study sample was comprised of dentists with teaching responsibilities. Purposive sampling was employed, which is often the case with interviews that explore an issue in depth by targeting a particular section of the population and which do not aim to generalise the interview study results (Patton, 2002). This ensured that the opinions and views derived from the sample population of interest. Demographic information, such as gender, socioeconomic status and ethnicity, were not taken into consideration during participant selection, as the aim was to obtain dentists' general opinions rather than to investigate whether certain demographic factors might influence those opinions. Although it is difficult to generalise the results of a qualitative study in the typical sense, or as quantitative researchers usually understand it, there are many types of generalisation. For instance, most people

are referring to 'probabilistic generalisation' when they discuss generalisation. In this type, the results of the study can be generalised to the wider population which the sample represents. However, this necessitates certain measures, such as confirming that the sample was randomly selected or representatively selected, in order to ensure that the sample is representative of the population to which the generalisation is made (Ercikan and Roth, 2009). Considering the nature of a qualitative study, probabilistic generalisation is highly difficult, although not impossible, for qualitative research to claim and apply (Ercikan and Roth, 2009). Ritchie et al., (2013) have identified three types of generalisation. The first is representational generalisation, which resembles 'probabilistic generalisation', whereby the results of the study are generalisable to the wider population of the sample. Ritchie et al., (2013) have suggested that this type of generalisation, though more common in quantitative research, is applicable in qualitative research as well, provided it addresses two issues. First, the research must ensure that it accurately captures the phenomenon it studies. Second, the sample must be representative of the population from which it derives; specifically, it should be diverse enough to cover the array of characteristics that the population exhibits. The second type of generalisation is inferential generalisation, which is also known as 'transferability', and generalises the results to a context or setting that differs from that of the sample. 'Thick descriptions' of aspects of the study could support inferential generalisation, as it encourages other researchers – or even readers – to make their own judgments about contexts to which the findings can apply. The third and final type of generalisation is theoretical generalisation, which concerns generalisation of the theory or principles that result from a study for use by others. Quantitative research commonly uses theoretical generalisation to describe the 'universal theory', which is comprised of laws that are constricted by contexts. On the other hand, theoretical generalisation is less fixed in qualitative research than in quantitative research. It is rather interpreted as a hypothesis that other studies could prove or disprove. Such generalisation is occasionally referred to as a statistical generalisation, which Ritchie et al., (2013) have termed a representational generalisation. The Ritchie et al., (2013) classification refers to analytical generalisation as theoretical generalisation. Finally, case-to-case transfer is the same as inferential generalisation (Onwuegbuzie and Leech, 2007, Polit and Beck, 2010). These types of

generalisation signify that it is possible to generalise the findings of a qualitative study; however, such generalisation demands adherence to the rules for making such claims as well as careful consideration of the appropriate type of generalisation based on certain factors, such as the sample size and the representativeness of the underlying population (Firestone, 1993, Onwuegbuzie and Leech, 2007, Polit and Beck, 2010).

4.3.2 Interviews

The aim of this study is to explore dentists' opinions on a PCC hierarchy and to examine whether this hierarchy can be used as a basis for developing a tool for dentists to self-evaluate how patient-centred they are. Since the theoretical model applied here was new and had not been previously tested, the most suitable method was one that allows for in-depth exploration of dentists' opinions on the usefulness of the hierarchy and how adoptable it might be in a dental setting.

Quantitative methods are not suitable for generating this type of information, as these methods of data collection are more fitting and designed to quantify the number of people who hold certain opinions, or to study a cause and effect relationship between two variables, for example. In addition, because this method is designed with close-ended questions or rating scales, it is not ideal for extensively eliciting participants' opinions or views. It is possible to use a survey to garner information on how many dentists practice PCC, but it would be difficult to determine why or how they practice it and their motivations for doing so (Golafshani, 2003). A qualitative method was therefore deemed more compatible with the purpose of this study. In a qualitative study, the respondents can respond to questions in their own words, thus providing their own opinions in detail. For this study, semi-structured interviews appeared to be the most suitable qualitative method (Graham et al., 2003, Pusic et al., 2009). In a semi-structured interview, the questions serve more as guidelines than as a rigid list that the interviewer must follow. For example, the interviewer is allowed to pursue a relevant emerging idea, and the order in which he or she poses the questions is flexible and based on how the interview develops. If an interviewee starts talking about one idea, it is favourable to follow along than to prioritise asking the questions as

ordered in the topic guide (Appendix.1). Based on responses, the interviewer can also explore a question more deeply with one interviewee than with others. Therefore, the semi-structured interview seemed the most suitable method to obtain the information necessary to answer the research questions (Creswell, 2013, Ritchie et al., 2013). Focus groups had initially been considered, but the idea was discarded after considering how difficult it would be to recruit dentists, who have busy schedules, for a specific date and time. The interviews allowed for greater flexibility and eased the accommodation of the dentists with regard to the time of the interview appointment and the location.

The semi-structured individual interviews were conducted mostly in the dentists' offices at Guy's Hospital, and in some cases in a meeting room. Conducting the interviews in dentists' offices offered more convenience for the dentist. Additionally, holding it in a familiar place where they felt comfortable encouraged them to feel at ease and consequently answer the questions more freely. They would feel in control rather than at a disadvantage, which might have been the case if they were interviewed in unfamiliar place (Quinney et al., 2016).

Ethical considerations

The King's College London research ethics committee granted ethical approval to collect data for this study, reference number: **BDM/14/15-7** (Appendix 3). Participants were informed of the research objectives and the nature of the study, which was clearly described to them at the start of each session. Written permission (i.e. informed consent) was also obtained from all participants, and their rights, needs and wishes were considered when reporting any data. The participants' personal information and the audiotapes were stored in separate locations. All paper documents were stored securely in locked cabinets, and electronic documents were stored in password-protected devices.

4.3.3 Number of participants

It is generally recommended that the sample size for interviews in a qualitative study be between 12 and 60 (Baker et al., 2012, Creswell, 1998, Ritchie et al., 2013, Haddock and Zanna, 1998). However, the exact number depends on the type of study, the diversity of the participants and the resources needed. Conducting a large number of interviews can be time consuming, and as Guest et al., (2006) have illustrated, the data may become repetitive, in which case the cost of conducting more interviews would likely exceed the benefits. Guest et al., (2006) have reached the point of saturation after the 12th interview, with 92% of the final codes identified by this point. Conducting an excessive amount of interviews might also complicate a thorough analysis of the data (Sandelowski, 1995). Additionally, in previous studies specifically on PCC in dentistry that have had similar populations to this study, researchers have reached the point of saturation after 20 interviews (Asimakopoulou et al., 2014, Scambler et al., 2014). Based on this information, this study entailed 20 semi-structured interviews with the expectation that the data would be saturated by this point.

4.3.4 Recruitment

Dentists who were eligible to participate were sent an email inviting them to take part in the study. Dentists' email addresses were obtained from the Dental Institute's head of administration at Guy's Hospital. An individual email was sent to dentists in the list, rather than a global email, in order to increase the likelihood of the dentists' participating in the study. The invitation email included a brief description of the study and attached the information sheet. Dentists were given the freedom to select the time, date and setting for the interview. When a dentist expressed an interest in participating, a reply email was sent to inquire about the preferred time and place, if not already suggested by the dentist. A reminder email was sent to all participants three weeks after the first invitation, and a global email was sent to all dentists at the Dental Institute to ensure that all eligible dentists had received the invitation. Distribution of the recruitment emails occurred through the method that Salant and Dillman (1994) have suggested as a

guideline, but with some adjustments. The method recommends sending a follow-up invitation to respondents between four and eight days after the initial email, but the follow-up email in this study was sent three weeks after the first email because sending the reminder email to busy dentists just one week after the first one seemed imprudent, and some of them were still responding to the first invitation email. Another follow-up email was sent three weeks after the reminder email. After the second reminder, the target number of N=20 participants was achieved. The dentist sample that was recruited and interviewed was predominantly male (17 out of 20). The table below provided some information on the characteristics of the dentists interviewed. Some information was missing but the information available showed that dentists interviewed were from different specialities with the majority of them (15 out of 18) having more than 20 years of experience.

Table 4. 1: *Characteristics of the study sample*

Dentists characteristics	Total (N=20)
Year of experience	
0-9	1
10-20	2
≥20	15
Not specified	2
Total	20
Sex	
Male	17
Female	3
Total	20
Speciality	
Prosthodontics including restorative dentistry	8
General dentistry	3
Oral and Maxillofacial Surgery	2
Oral surgery	1
Gerodontics	1
Periodontics	1
Endodontics	1
Special care dentistry	1
Paediatric dentistry	1
Not specified	1
Total	20

4.3.5 Conducting the semi-structured interviews

Before each interview, a brief introduction to the study was provided and included a diagram that describes the various levels of the PCC hierarchy. In addition, the use of voice recordings that had first been mentioned in the recruitment email was restated, as was the fact that these interviews would be available only to the student researcher and her supervisors. It was clearly illustrated that the results would be presented in such a way that ensures the anonymity of the participants

to a wider audience. Subsequently, interviewees were requested to sign two copies of the consent forms, one to keep themselves and one for the researcher.

Interviewees were then asked a number of questions about the concept of PCC in general, the hierarchy as a framework for the concept of PCC and the applicability of this hierarchy in a dental setting (see the Topic guide in Appendix 2). Each interview began with a brief introduction that presented and described the hierarchy, then dentists were prompted to select which level they found useful and why as well as which level they found to be the least useful. In the case of any confusion about what each level represented or the differences between levels, further explanations were provided. Next, the dentists were asked which level of the hierarchy resonated most with them and why as well as which level was most likely to match patients' preferences, based on their experiences, and why they might prefer this level to another. Then, they were asked how this hierarchy could be designed to be more suitable in a dental setting and which modifications to the hierarchy they would suggest in order to increase its practicality and applicability to their daily routine.

After obtaining consent from the participants, the audio recording commenced. The student and her supervisors used the audio recordings only in relation to the current research, and they did not serve any other purpose. The researcher transcribed the audiotapes verbatim and anonymised them before destroying the recordings.

Transcriptions and an initial analysis of the interviews were performed alongside the interview process. This revealed areas in need of further elaboration and more probing in subsequent interviews. In addition, it provided an overview of possible themes that might emerge from an in-depth analysis.

After each interview, notes were recorded regarding how certain issues warrant further investigation and whether specific questions required examples to increase their clarity for the participants.

4.3.6 Length of the session

Interviews lasted an average of 30 minutes, but ranged from 15 to 66 minutes. The invitation email and first reminder email noted that the interview would last for one hour. The justification for this interview length was to provide adequate time to address the questions and obtain rich data without demanding too much time from the dentists' schedules, which would hopefully encourage participation in the study. After the first few interviews, it became clear that it was best to focus on the questions in the topic guide while still allowing for flexibility in the appropriate degree of probing based on how the dentist covered the various areas. Some participants offered lengthy details, while others needed to be encouraged to elaborate on their answers.

4.4 Data analysis and interpretation

Data analysis in qualitative research occurs in parallel with data collection, unlike in a quantitative study, where the phase of data analysis should come only after the collection of all data (Forman et al, 2008). In this study, interviews were analysed on an on-going basis throughout the data collection. The software program QSR NVivo aided in the data analysis process by organising the data and the different codes.

A thematic analysis approach was adopted to analyse the data. This approach involves systematically reviewing the texts to identify all possible topics, which are later grouped into key themes. Data analysis can be divided into two main processes: (1) data management and (2) data abstraction and interpretation. Each process can possess certain aspects of the other (Ritchie et al., 2013).

The process that Ritchie et al., (2013) have suggested was consulted as a guideline to analyse the data. The researcher began the process by familiarising herself with the data and reviewing the texts to gain a sense of the possible topics. Next, she recorded the initial codes, ensuring that they were based on the data and not the researcher's own preconceived notions. This was ensured by the researcher going through the transcripts line by line and assigning codes to each

line, usually using the interviewees words for codes, except when more suitable wording was found. In addition, these codes were revisited multiple times and the sections where a code was used were compared to detect if there is any inconsistency in how it was used. After that, an initial framework was developed to organise the data, facilitate the assignment of codes to the different themes and subthemes and provide an initial comparison with reports in the literature. The framework facilitated the initial clustering of the data under certain themes and subthemes. The suitability of each label for describing the data grouped under it was checked, and some themes and subthemes were renamed to more effectively describe the data and their connections. Literature was also consulted in organising the themes and subthemes after the initial generation of the codes. Below is a table which displays the initial coding framework for categorising the themes and subthemes. The table below shows the initial codes identified and the initial categories developed from grouping these codes.

Table 4. 2: *Codes resulting from the initial analysis of the interviews*

Category	Codes
Dentists' views of the hierarchy	<ul style="list-style-type: none"> • Useful for teaching students and dental trainees • Useful as a self-reflection tool • Already practice the tool and therefore no need for such tool • Can be used as part of Continuing Professional Development (CPD) training or as part of the required reporting by the NHS, especially with the new contract • Linear, which sometimes is not reflective of practice • In level 3, the meaning of tools is not clear and needs more description
Factors affecting patients' interactions with dentists	<ul style="list-style-type: none"> • 'Past medical experience' • Trust • Dentist-patient rapport (sometimes affected by whether the dentist is the patient's regular dentist or not) • 'Discussion-style explanation' • How approachable is the dentist • How pleasant is the dentist • Dentist interest

Dentists' definitions of PCC	<ul style="list-style-type: none"> • Informed consent • Presenting the different options available to the patient • Patient can always say no and therefore is always in control • Patient is the one who always makes the decision (even if the dentist has presented the information in a leading way)
Dentists' perceptions of their levels of practice vs. perceptions of others' levels of practice	<ul style="list-style-type: none"> • Practice at level 3 in general, with a few practicing at level 4 and a few practicing at level 2 with some patients • Don't think we live too much in level 1' • Majority (other dentists) practice at level 2, sometimes level 3
Barriers to practicing PCC	<ul style="list-style-type: none"> • The organisation of the healthcare system: <ul style="list-style-type: none"> ○ Lack of time ○ Lack of funding ○ Limited options available ○ Students delivering the care • Patient anxiety • Patient not meeting the treatment criteria • Excessive treatment • Access: <ul style="list-style-type: none"> ○ Does patient have access to internet ○ Language skills • Information constraints • Patient lack of interest in being part of the decision-making • Patient comprehension: <ul style="list-style-type: none"> ○ information overload ○ miscalculating the risks • Dentists' losing autonomy • Dentists' losing authority • Legal consequences • Misinformation • Terminology used by the dentist • Patients relying on the dentist to make the decision for them

Barriers to patients being in full-control	<ul style="list-style-type: none"> • Patient may have learning disabilities • Any co-morbidities the patient might have that limit the options available to them • Patient might make the wrong choices that might affect their health negatively • The context in which the care is delivered: <ul style="list-style-type: none"> ○ Limited choices available ○ Time constraints • Legal consequences for the dentist if he or she carry a treatment that the patient want but that is not in their best interest • Dentist as the professional is the one who knows what is best • Patients want options that require commitment they are not willing to offer • Patient may have unrealistic demands • Dentist losing autonomy
Patients' characteristics that influence their level of participation during a consultation	<ul style="list-style-type: none"> • Level of education • Age • Generation • Culture • Past experience • Level of pain • Personality • Minor vs. major decisions • Societal influence
Motivational factors to use the tool	<ul style="list-style-type: none"> • Other dentists doing it. 'It's all about the tribe' • Financial incentives • Part of the reporting required by the NHS • Part of the CPD activities required to be carried out by dentists who just started
Differences between NHS and private practices (context of healthcare delivery)	<ul style="list-style-type: none"> • Waiting time expected by patients • More time allocated for consultations • Paying patients 'practice can't survive without them' • Number of options available to the patient • Waiting areas • Lv.4 is the level that is generally practiced in private settings
Characteristics or descriptions of the different levels	<p>Lv.1:</p> <ul style="list-style-type: none"> • Practiced more in the older days • Practiced with patients with learning disabilities sometimes • Out-dated • Leads to patients complaining, especially if complications arose

	<ul style="list-style-type: none"> • Not useful Lv.2: • 'Minimum legal obligation' • Where most dentists practice Lv.3: • Where most dentists see themselves practicing or aspiring to practice Lv.4: • Patient dependent • More ideal than reality • 'listening skills' or 'two-way' communication • Not possible sometimes: <ul style="list-style-type: none"> ○ factors outside the dentist and the patient such as funding, other co- morbidities the patient have ○ dentist will be somehow leading the patient such as the way the information is being presented; the knowledge is in the hand of the dentist ○ patient is always influenced by external factors so their choices might not really be their own ○ the patient wanting something that is harmful or not possible ('implant without any teeth missing') ○ dentists feeling this will take all the authority out of their hand
Characteristics of the dentists practicing at the higher levels	<ul style="list-style-type: none"> • have empathy • have the ability to listen • is able to tailor the choices and the information to the particular individual • good communication skills in general • usually have clinical experience • able to listen to what the patient is not saying; their unexpressed worries • clinical skills • like people • like their job • their personality in general; not intimidating and able to help the patient relax

What patients want (from the dentist's perspective)	<ul style="list-style-type: none"> • given information even if they will leave the final decision to the dentist • being treated as a person • being treated as an adult • given choices • most of the patients don't want to make the final decision themselves and want the dentist to guide them to arrive at the appropriate decision • dentist using "human approach" when asking classical question • patients feeling that their opinions are being valued
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4.4.1 Reflexivity

Before proceeding to the findings in the next section, this section briefly addresses how the researcher might have influenced the data collection and analysis process. Many qualitative researchers have discussed the importance of acknowledging the impacts a researcher can have on qualitative research. They have also highlighted the tendency of such impacts to result from one's own characteristics, including gender, age, culture and beliefs (e.g. political, religious), and have emphasised the question of whether the researcher is an 'insider' or an 'outsider' in relation to the interview group (Berger, 2015, Koch and Harrington, 1998). Reflexivity acknowledges that the researcher is not an objective observer, and that he or she does affect the outcome and process of data collection and analysis to some degree (Berger, 2015). Berger (2015) has identified three ways in which the position of the researcher – as determined by his or her specialty, gender, age and experience, among other qualities – could potentially influence the research. First, the researcher's role as an outsider or an insider can affect whether he or she is welcome to interview or observe participants, the amount of information that participants are willing to share with the researcher and the ease of access to that information and the researched group. Second, the position of the researcher might affect his or her relationship with participants and whether those who are interviewed or observed are sufficiently comfortable to talk without reservation. For example, if there is a substantial gap between the status of the researcher and that of participants, then participants might suspect that the researcher will judge them, especially if the topic of study is an issue with negative social connotations. Third, a researcher's background and experience affects how

he or she views and makes sense of the world. This in turn informs the way in which he or she asks questions, the language he or she uses and his or her approach to data selection and interpretation, which ultimately determines the final results. Therefore, reflexivity is essential to gain awareness of these issues and their potential implications for the research process. Reflexivity is thus an important measure to ensure that the researcher conducts his or her qualitative research in a rigorous way and continuously reflects on how he or she might influence the data collection, analysis and interpretation (Bradbury-Jones, 2007). As the researcher for the present study, I am a PhD student who is not a dentist, and I am therefore an 'outsider' to the population. This may have affected how dentists responded to my interview questions and whether they spoke honestly or had some reservations about expressing their thoughts and views to someone who lacks experience in dentistry. These dentists might have believed that I would not understand the issues they encounter, or they may have felt the need to simplify their responses so that I could comprehend their points. Because of my lack of experience and knowledge of the daily practices of a dentist, I may also have failed to understand or empathise with the issues that the dentists identified. On the other hand, my position as an outsider was advantageous in that I could examine and discuss the issues without any preconceived notions. Furthermore, the dentists might have felt that I, as a non-dentist, would not know if the insights they shared in relation to their practice were ideal or not and consequently could not judge them for it.

In addition, I am a non-British female and am relatively young compared to the dentists I interviewed, which might have affected their responses and how they expressed them. Moreover, these traits most likely influenced the way in which I interpreted the data as well as how I posed questions. Upon reflection, there were some questions I should have asked, and I should have done more probing to encourage the dentists to elaborate on certain points. These issues could be a result of my mentality that they, as experienced dentists, were more knowledgeable of and familiar with the practice of dentistry, so I should not challenge them. In a few cases, I also realised during transcription or immediately after the interview that I had made a statement that could be interpreted as agreeing with the dentist's remark even though I actually did not. Like in my third interview:

respondent 3: ... I think lv.3 is quite an easy step but you just got to use your brain and think more, I would love to meet the people who works at lv.4.... It would be a lovely idea.

Interviewer: yeah. It's a bit ..., I think its as you said its not easy to give the patients

This may have been due to my attempt to be polite and non-confrontational, which could be a result of my cultural background, as it dictates that it is important to respect one's elders and to refrain from being overly challenging to avoid appearing rude. It might also be a consequence of my desire to conduct smooth interviews in which dentists would be comfortable sharing their ways of practice or thought – which were occasionally less than ideal – without hiding their honest opinions for fear of judgment.

Furthermore, this research is part of a PhD study, and as a PhD student who was interviewing experienced dentists, I did not feel as though I held any power over the interviewees or that I could pressure them. Their professional status would be considered above mine in most cases, as several of them held higher degrees, such as a PhD, in addition to practicing dentistry for many years. In view of this, I perceived that a power imbalance was not an issue in this study compared to others (Draper and Swift, 2011) in which the researcher generally maintains a more powerful position than the interviewees.

A final issue was the setting of the research. Since the majority of the interviews took place in the same setting (Guy's Hospital), I had the impression in a few cases that the interviewee had heard about the study from a colleague. I cannot say for certain if that was the case, apart from a couple interviewees who had emailed their colleagues after the interview to encourage their participation in the study, but it seemed apparent to me that some of them had a preconceived idea of the study. In most of these cases, this sort of knowledge actually seemed to yield a positive result, and the dentists were interested providing their views and opinions. However, in one case, the dentist seemed somewhat guarded, at least initially.

In addition, with regard to the setting, I did not have much contact with interviewees

prior to the study despite being stationed in the same setting as the majority of them. So, the setting was not a factor that led me to establish any opinions about an interviewee before the interview itself. In fact, the familiarity of the setting was beneficial for both the interviewees and myself, as it did not introduce any additional stress or distraction.

Because of my experiences with hospitals in my home country of Saudi Arabia, I had expectations of the healthcare system and its ideal or actual operations that differed from the reality of the NHS, or even from private settings in the UK. In Saudi Arabia, three main bodies operate the healthcare system. The first is the Ministry of Health, which is public and provides care free of charge. This ministry offers care at the levels of primary care, which is commonly provided at clinics, and secondary and tertiary hospitals. The second provider of healthcare in Saudi Arabia involves governmental bodies, including the armed forces and ARAMCO, that provide free, multi-level healthcare to their employees and their families. The last of the three bodies is the private sector, which offers services at all levels of care for a fee (Almalki et al., 2011). Therefore, issues regarding the healthcare system are not the same in Saudi Arabia as they are in the UK, although there are some similarities, such as a long waiting list for the governmental hospital (Alyasin and Douglas, 2014) and the consequent scarcity of available beds, especially in specialised hospitals (tertiary care). My experience with the healthcare system derives mainly from my visits to hospitals and clinics as well as from my internship year. My exposure to the healthcare system in Saudi Arabia and to its differences from the NHS shaped my experience and, as a result, my expectations of the healthcare system and its settings. This could potentially have affected the lens through which I examined the issues that interviewees discussed.

4.5. Findings

Themes

The analysis of these interviews resulted in 11 subthemes, which can be grouped into five main themes:

1. Understanding PCC
2. The role and influence of patients on the delivery of PCC
3. The role and influence of dentists on the delivery of PCC

4. The importance of context
5. Dentists' views on a hierarchy of PCC

The first theme covers ideas of what constitutes PCC according to dentists. The second theme explores the dentists' perspectives of what patients want from a consultation, patients' characteristics and the patient as a potential barrier or facilitator to dentists' adoption of a PCC approach. The third theme concerns the characteristics of dentists who practice at the higher levels of the model as well as dentist-related barriers that hinder the adoption of PCC. The fourth theme focuses on the context in which dentistry is practiced and how the issue of context affects the patient-centredness of dentists who practice in different settings. It also covers the types of barriers that might result from the context in which the healthcare is delivered. The fifth and final theme encompasses dentists' views on the hierarchy itself as a means to practice PCC.

The dentists who were interviewed were homogenous in that they all had teaching responsibilities and worked in similar settings, so there was a high level of agreement regarding the concept of PCC and the hierarchy, including barriers and the level of the hierarchy at which the interviewees tended to practice clinical dentistry. Within each theme, the subthemes that emerged from the data analysis are presented and illustrated throughout with direct quotes from the interview transcripts.

Under each quote are abbreviations and numbers, which are interpreted as follows: the number at the beginning refers to the chronological order of the interview, so 1 means this is the first interview conducted; the pg. refers to the exact page in the interview transcript; and the last abbreviation – M or F – refers to the gender of the interviewee.

4.5.1 Understanding Patient-centred care

This section presents the first sub-theme that emerged from the analysis of the interviews regarding dentists' perceptions of what constitutes the concept of PCC.

Dentists' definitions of PCC

The interviewed dentists expressed broad ideas of what constitutes PCC. Some of them noted that they were not familiar with the definition of the concept of PCC in the literature but had a general idea of the meaning of the term.

'...but to be honest my...knowledge in the literature and evidence-based behind PCC is not great' (2, pg.2, M)

In general, dentists viewed PCC as the dentist possessing empathy and demonstrating kindness to patients.

'you got to like people, ok and have empathy with them' (9, pg.4, M)

On the other hand, some dentists defined PCC as closely related to informed consent. The idea is that patients must be given all relevant information needed to make a decision, and they must agree to the proposed treatment before signing a consent form. This would entail acquiring informed consent from the patient, which is done for all patients, to ensure the delivered care is always patient-centred if the patient has consented to it.

'so PCC I'm guessing that you mean that they fully consent for treatment, so that they know all the details. So that's what we do anyways' (15, pg.2, F)

Although it seemed that dentists generally did not know how the literature has defined the concept of PCC, it can be assumed from the responses here that they felt they knew the basic meaning of PCC. Most of the dentists interviewed associated the concept of PCC with being empathetic and showing concern and interest in the patient. A few of them equated the concept of PCC with simply obtaining informed consent from the patient.

4.5.2 The role and influence of patients on the delivery of PCC

Following up on questions about the nature of PCC, participants were asked about the role of patients within a consultation and what patients wanted from a consultation. This section presents issues related to patients. These are divided into three sub-themes: what the patients want from the perspective of the dentist; the different characteristics that affect patients' preferences for a certain level; and the patient as a barrier to dentists' adopting a PCC approach, from the dentists' perspective.

Dentists' perspective on what patients' want

When dentists were asked what they thought patients wanted from a consultation, two types of answers were given. The first related to the overall nature of the interaction. These responses referred to patients being treated with respect, dignity, and trust:

'I think patients like to feel safe and cared for and dentistry is all about trust and honestly' (17, pg.6, F)

'at least lv.3 for every patient because it builds trust, it builds a framework to be able to help that patient for years and years and years which what we do at the practice' (13, pg.1, M)

However, it was suggested that complete trust can sometimes lead to problems for patients if the trust is misplaced:

'There are probably some patients... who come to me and I don't know how they got in such a mess, they have things that were going wrong and they kept coming back and coming back, and I thought I have never done that, I would have gone and got some other advice but patients, lots of patients are very trusting and respectful of a professional. So they, those patients are quite open to abuse I think by not giving them a choice.' (3, pg.3, M)

These responses suggest that participants recognise the need for good-quality basic care before they consider questions of information and choice.

The second set of answers builds on the good-quality care outlined above to incorporate information and choice, moving from the foundations to the model itself. There was a suggestion that patients preferred to be treated like ‘adults’ and provided with accurate information about the options available and what is known about them:

‘I think most patients prefer to be treated like adults and you give them all the information you’ve got and if you don’t have the information to make the choice you tell them.’ (9, pg.5, M)

It is interesting here that if most patients want to be ‘treated like adults’, then by inference some do not. This reverts to traditional patriarchal practices whereby clinicians adopt a parental role, and it suggests an adoption – perhaps unconsciously – of the patriarchal dentist/patient relationship, at least on the part of the dentist in this example. Building on this, participants suggested that patients generally want to receive information, even if they ultimately leave the final decision to the dentist:

‘they want to know; they want some information but if they think we think it’s right then they think that’s acceptable.’ (13, pg.4, M)

While the provision of information moves a consultation from the basic building blocks of PCC into the components of the model itself, there is little movement beyond the first level of the hierarchy, where the dentist remains firmly in control of the consultation.

‘it is most useful to have the patients feel they are in full control but as I explained to you they are not usually in full control at, with the operator they are working with, if they wish to pursue a course which is not in their best interest.’ (4, pg.2, M)

Choice was also mentioned in relation to consultations, and it was suggested that patients want to be given choices but do not usually want to decide on treatment on their own; rather, they want the dentist to help them arrive at the final decision:

'I think a lot of patients like to be guided, they don't like to sit there and make the sole decision on their own but I wouldn't say, no they still like to have choice. ' (8, pg.9, M)

Interestingly, the respondents worked their way through the hierarchy of PCC, whether consciously or unconsciously, by speaking to the basic foundations of quality care and to information and choice. From the dentists' perspective, the role of information was specifically to cultivate patients' confidence in dental treatment options.

'So that one is fine - as long as they have all this information behind them... but if they are in complete control of their care and they don't know what they are doing, then it's dangerous.' (9, pg.5, M)

'To get them informed consent you have to speak the truth. So I will always give them the different options and the pros and cons of them but then we have to turn out and say however the only one we may be able to personally offered you are A, B and C.' (11, pg.2, M).

When the issue of control was explored, however, it was evident that control remained firmly with the dentist in each of these responses, and that the participants felt the patients truly wanted that.

Patients' characteristics that influence their level of participation during a consultation

The third subtheme focuses on the many characteristics that the dentists who were interviewed felt affect patients' levels of participation and their preferences in relation to the level at which they would like the consultation to work.

Education was one of the characteristics that was emphasised and which, from the participants' perspective, could affect how much information and choice a patient might want during a consultation. Most of the dentists who were interviewed felt that the more educated a person is, the more likely he or she will be to want the interaction to be at the higher levels, where the patient is more involved in the decision-making process and the dentist provides more information and choices.

'So intelligent, articulate, university educated, professional people will almost start to insist on being at lv.2 straight to 3.' (5, pg. 9, M)

'But there are many other things depending perhaps education, background, social economic standing.' (12, pg.1, M)

Dentists cited that education can also affect not only patient preferences for a particular level but also their ability to make a choice and their overall capacity to actively take part in the decision-making process:

'maybe their level of education and understanding... because if they haven't got the education level and understanding to process the information that has been given and you are providing it in an effective manner then they won't come to understand what's going on, they can't make a choice.' (2, pg.7, M)

The suggestion or assumption here is that the more educated patients are, the more information they want and the more they like to be part of the decision-making process.

Not all participants shared this view, however. Some cited the opposite, stating that people with higher education may prefer to leave the final decision to the dentist:

'I think some people, particularly very educated people, they trust qualified people and they go "you are the one who is the expert and I trust your opinion; what would you have done".' (19, pg.16, M).

This suggests a shared understanding of professionalism and a shared trust in 'fellow professionals'. In general, the dentists noted that the level of education was an important factor affecting patient preferences; there were slight differences, however, in relation to the potential effects of a higher level of education.

Age is another factor that dentists cited as possibly affecting patients' preferences for a certain hierarchy level. Dentists associated older age with a preference for the lower hierarchy levels, where dentists make the decision for the patient. Conversely, dentists considered younger people to be more likely to prefer the higher levels and to desire greater involvement in the decision-making process.

'I think that you will still get the occasional person, or perhaps more than the occasional person who say "I'll leave it to you doc you are the one who understands this" and in general I think the older the person is the more they likely to say that' (17, pg.6, M)

'age related stuff here in that older people will still tend to have that attitude that doctor knows best.' (14, pg.4, M)

'they're going to make an effort in order to utilise lv.3 and I will bet you only a small number of the patients now, younger perhaps, who would want to work at lv.4 because of the amount of effort necessary to reach the decision'. (1, pg.8, M).

Some interviewees disagreed, suggesting that older patients want as much information and choice as the younger ones:

'a lot of the older patients actually want quite a good bit of information, I'm not convinced they want any less. (6, pg.14, M).

Even though age might be a factor that affects patient preference for a certain level and style of consultation, the dentists felt that assumptions about preferences should not be based solely on a patient's age:

'there are certain age issues but you can't assume that they will necessarily apply to all old people or younger people or whatever, you know you got to, you can't make the assumptions that somebody is wanting the information or not wanting the information, you still got to give everybody the information.' (14, pg.4, M)

Age was viewed as a significant factor affecting patient expectations and requirements of consultations. There was some disagreement regarding the effects of age on patient requirements, but it was acknowledged that dentists should not decide how much information and choice patients would want based solely on assumptions stemming from their age.

Some participants also mentioned generation, which is another way of presenting age, as a factor:

'the people who want to know most probably are in their 30s, 40s, 50s. They are the sort of, 'consumer generation'...' (6, pg.14, M)

'well there are some people and I think to some extent that's generational. We already talked about people's expectations and I think that you will still get the occasional person, or perhaps more than the occasional person who say I'll leave it to you doc you are the one who understand this and in general I think the older the person is the more they likely to say that, yeah.' (17, pg.6, M)

Patient culture was also seen as a factor that influences patient-dentist communication. According to the dentists, it is a factor likely to affect whether

patients want to be part of the decision-making process and how they prefer to communicate with the dentist.

'some cultures like to communicate, some cultures don't, some cultures communicate with their own cultures very well but don't communicate with other cultures very well.' (4, pg.7, M)

'their cultural expectations and by cultural I mean there are maybe some cultures where you are told what you do – it is just what you do. Equally cultural ..., it maybe how they were brought up, so the culture where they grew-up, what they experience as a child.' (5, pg.9, M)

'I suppose many things seem to come back to ..., culture often' (12, pg.5, M)

The respondents felt that culture can affect the level of interaction between a patient and a dentist and can influence the level of participation that patients want in a consultation. What is unclear is the meaning of 'culture' in this context. The term could be used to refer to geographical influences or to ethnicity, religion or spoken language. However, with one exception *quote* (5, pg.9, M), as can be seen from the quotes, none of the respondents clarified his or her meaning of the term.

In addition to age and culture, participants also expressed that patients' levels of life experience could affect their preferences for a higher or lower level of participation in consultations. It was suggested that patients who were seen to have more information, including more knowledge about the different choices available to them, were more likely to want to assume an active role:

'their own experiences, parent experiences you know. I think these are the things that make a difference, their knowledge of different procedures...' (2, pg.7, M).

Furthermore, patients with clinical backgrounds were considered more likely to be granted more information and choice and to desire more involvement in the decision-making process:

'previous knowledge, so I find I need to do more lv.3 with doctors' (15, pg.4, F)

Another factor that dentists cited as having an effect on patient preferences was patient personality:

'some patients, again this is personality, there is the psychology of people's make up.' (13, pg.4, M)

'So it really does depend on the personality of the patient, such a range of people out there.' (11, pg.5, M)

The dentists suggested that people with certain personalities prefer to be more involved in the decision-making process, want more information and enjoy knowing every little detail, while others request only the basic information and leave the final decision in the hands of the dentist. However, the participants did not elaborate on which type of personality might prefer the higher or the lower levels.

Dentists also heavily referenced the level of pain that patients experience at the time of the consultation as a factor that strongly influences patient preferences. Dentists noted that the main priority for patients in pain is to relieve the pain as quickly as possible, and that is going to influence the content of the consultation in terms of information and choice provision:

'if they are in pain they just want to be told how to get out of pain. Quite often if you start telling patients all the possible information then they just say" I just want it out, I just want this" or they just want to deal with pain.'
(15, pg.4, F)

'Patients in pain say "I don't care what you say, can and can't do, can you just get me out of pain, what will get me out of pain and which will get me out of pain quickest"...' (5, pg.9, M)

'state of mind at the time, level of pain they might be in' (8, pg.9, M)

This suggests that the level of pain the patient is experiencing can influence how much choice and information the patient wishes to receive and the type of decision that he or she makes.

From a dentist's perspective, providing patients with only basic information and striving to relieve their pain without presenting or discussing all of their options might seem to work at level 1. Technically, this might be true, but a dentist is actually patient-centred by following patients' wishes, even when it may seem counterintuitive.

Another factor that the sample highlighted was the severity and complexity of the condition requiring treatment. Dentist participants generally agreed that the severity of the condition, and subsequently the decision to be made, affected patients' levels of participation and demands for information. There were, however, two opposing views. Some participants felt that the more complex and major the decision was, the more the patient will want to be part of the decision-making process:

'I think if is something routine I don't think they care very much' (20, pg.2, M)

Others felt that the more complex the treatment, the more likely it was that patients would not want to make the decision themselves:

'my only input on this is to say that this is fine and it is fine if the conditions are very low level condition but as you go up in severity some people become paralysed with fear and when they become paralysed they are not able to make these choices any more...' (9, pg.1, M).

This reveals the opinion of dentists that the complexity of a case can affect how much information and choice the patient wants. Some dentists support the view that the more complex and life-altering a decision is, the more likely patients will be to desire involvement, while others suggest that the opposite is likely to be true, as patients might be overwhelmed and leave the decision to the dentist.

This subtheme has presented the various factors that dentists believe might influence the amount of information and choice that patients want as well as how involved they want to be in the decision-making process. The highlighted factors clearly fall into two groups: one related to social determinants (age, education levels, cultural factors) and the other related more specifically to pain and clinical factors. Participants seemed to agree on the factors that were vital to consider, as most of the factors were cited repeatedly; however, there was considerable disagreement regarding the *kind* of effects that some of these factors could have on the adoption of PCC.

Patient-related barriers

Dentists have listed many barriers that make it difficult to give patients full control of their care. These can be patient-related, dentist-related or external barriers outside of the control of both patient and dentist. Patient-related barriers can result from the patient's own personality or from his or her condition or general circumstances. A patient-related barrier that dentists cited was learning disabilities that, in their view, preclude a patient from being in full control of his or her care. Some form of contribution and involvement on the part of the patient could be achieved, but it was challenging, if not impossible, to guarantee full control to the patient. In this case, respondents seemed to be in favour of dentists making the final decision, with some participation of the patient and his or her family:

'so if you have a patient who has learning difficulties then the explanations need to be tailored to a level that they are able to understand, or if they still not able to discuss that with people who care for that person but in that circumstances the decision has to be the clinician's.' (17, pg.9, F)

Another patient-related barrier to being in full control was the patient having comorbidities that limit the options available to them:

'One because they won't necessarily satisfy the treatment criteria but because it might not be, it would not be a possibility for all of them, it could be that due to a lack of bone or whatever other factors, medical problems that might not be very suitable for them and that there might be other ways of doing it.' (18, pg.2, M)

One reason that dentists might be reluctant to give patients full control of their care is concern over the legal consequences that could result from the patient making a wrong decision. In the following quote, the dentist refers to this concern in a context where the chosen option is one to which the patient cannot legally consent:

'and one of the problems is that lots of people aren't, they want something that is unwise and they can't give consent because the way the law works is, they can't give legal consent for something that is bad for them. So if they sign a piece of paper saying I agree that (Respondent 6) can do this then if they sue me it is absolutely guaranteed they will win.' (6, pg.2, M)

This does not accurately reflect patients being given full control in the PCC hierarchy. Full control entails providing patients with all of the legal options available to them and allowing them to choose among them or from options they suggest that would not cause harm or lead to legal consequences for the dentist.

Another patient-related barrier from the dentist perspective is the patient wanting an option that requires a commitment that the patient may not be able to offer. Thus, a dentist might not grant the patient the option he or she wants if the dentist feels the patient would not be able to follow instructions and adhere to the treatment:

'So in any treatment plan ... you need to have that early stage of assessment of responses to care and if those patients don't respond to

your treatment and don't look after what you are doing or look after themselves then you have to modify what you are capable of delivering for them.' (10, pg.6, M)

There was also the problem of unrealistic patient demands:

'you have a certain percentage of patients who have unreasonable expectations as to what they think they can have.' (13, pg.2, M)

In addition, excessive treatment was also considered a patient-related issue that could render it difficult to give patients full control of their care:

'So that doesn't give them control of their care but it may indirectly moderate their care that they are not in danger of being over cared for and over treatment is a major problem in any form of dentistry' (10, pg.4, M).

A patient's language skills might make it easy or difficult to review the information that a dentist provides and suggests. In other words, language could have been either a barrier or a facilitator during a consultation.

'if you are dealing with a population who are in a very rough area of town who don't see dentistry as a very important aspect of their care ... where you have language problems' (9, pg.2, M).

There was also the issue of a patient's access to the Internet in order to retrieve the tools that the dentist recommends.

'So one of them is about access to care in the context... do you have internet supply at home, then I would say: well go and look at things...' (5, pg.4, M),

In relation to Internet access, dentists cited the issue of misinformation as potentially leading to difficulties with the patient having full control:

'You know they are going to get the information from any number of sources nowadays and some of that maybe misinformation because they are reading it from the wrong, you know from unprofessional or nonunderstanding standpoint' (10, pg.8, M)

According to the dentists, a problem can be the patient's lack of interest in engaging in the decision-making process:

'how involved they are in their own care as well, how much value do they put on their own health care. So if they don't put value they don't really care, just do what you want...' (2, pg.7, M)

A patient-related issue that dentists repeatedly noted was the patients' comprehension, or their ability to understand all information and options provided. This issue included patients' miscalculation of risks:

'well what I was saying... I don't think patients will ever be in full-control of their care, because how will somebody who doesn't understand, you are looking at a layman, I mean they don't understand the implications or the seriousness of certain things which might be happening to them.' (16, pg.4, M)

Information overload can also pose a challenge for patients in making a decision, which dentists indicated as a reason to focus on providing only relevant information to patients:

'So perhaps some of what's happening at the top end could be described as information overload for a patient and they are unable to make a decision because they have too much information...' (1, pg.9, M).

This subtheme presented some of the barriers to PCC that result from the patients themselves, according to dentists. The dentists identified many patient related barriers, some of which were outside patients' control, such as patients having co-morbidities or learning disabilities. Others were within patient control and were a result of the patient's attitude towards care, such as a lack of interest or of effort

needed to carry out a desired treatment option. Other than personality (or attitude to treatment), some could have been attributed to other factors, such as patients being misinformed by unreliable information in the media, their language skills and patient culture.

Factors affecting patient interaction with the dentist

After obtaining the views of interviewees regarding the level at which they thought patients preferred working and the barriers to the adoption of these levels, the participants were asked to comment on the factors that affect which level they chose to practice at during a consultation and on the quality of the interaction.

One factor that reportedly affected patients' interactions with the dentist is the patient's past experience of the condition, i.e. whether he or she had experienced a condition or procedure before. If so, dentists asserted that these patients had more knowledge and required less information than the average patient.

'I suppose experiences then make more relevant as well, if someone has experienced something or knows about a procedure, they can understand it better, they won't need as much information.' (2, pg.7, M)

For some patients, their past experiences in their home countries before coming to the UK affected the levels of interaction with their dentists. The quality of their previous experience can influence their expectations for the interaction and their level of involvement in the decision-making process:

'I think possibly the country from where you come from and your previous experiences with the professional care, and what your expectations are based on that. So you might be expecting much, much more or not an awful lot more.' (12, pg.5, M)

Dentists also identified trust as an important factor that can affect the interaction between a dentist and a patient. Dentists suggested that if patients trust a dentist, they are more likely to accept the information he or she provides, which makes it easier to reach a decision:

'People find it very difficult to make decisions and take information if they don't trust you, so no matter what you do here if they don't trust you they won't listen to you.' (9, pg.4, M)

Dentists admitted that it might take time to build trust and establish rapport. Rapport with a patient can be influenced by the dentist seeing the patient on a regular basis or over time:

'you know them; you know about their families. Over the years you got to know them so when they are coming immediately you got rapport, you say how is your daughter now she goes to university ...' (9, pg.4, M)

Seeing the dentist as approachable was also imperative for the patient to feel at ease during a consultation. Approachable dentists reassure patients that they can ask questions, which improves the level of interaction between the patient and the dentist and makes patient happier:

'so as much as possible if you are decent and reasonable and approachable. I keep saying "ask any questions, if I say anything you don't understand ask me questions" ... and they ask you questions and then you treat them with respect and then you treat the questions with respect and you answer them carefully and then they are happy' (6, pg.5, M)

This subtheme covered how different factors, such as patients' previous experiences with either the illness or with the Health Care Professionals, might affect how they interact with the dentist and how much information and choice they might want. Other factors, such as trust and dentist approachability, were also highlighted as impacting the interaction between a patient and a dentist.

In conclusion, this theme encompassed a number of subthemes related to how patients might affect and influence the dentists' adoption of PCC; in particular, it explored whether patients act as barriers or facilitators as well as their preferences in relation to information and choice. The subthemes covered here included dentists' perspectives on what the patients want; patients' characteristics that influence their level of participation during a consultation;

patient-related barriers; and factors affecting patients' interactions with dentists. It was generally agreed that patients influence the adoption of PCC in a number of ways, from the perspective of dentists, and that dentists are not the only actors who can impact the adoption of this approach.

4.5.3 The role and influence of the dentist in delivering PCC

This section discusses the perceived characteristics of a dentist who encourages and welcomes patient participation and treats the patient as more than a sum of symptoms. It then presents dentists' perspectives of the issue of dentists as barriers to the adoption of PCC.

Characteristics of dentists practicing at higher levels

According to the dentists who were interviewed, there are characteristics and skills that a dentist must possess to successfully practice at the higher levels (3 and 4) of the hierarchy of PCC, which is used as a theoretical model in this study. One of the most-cited characteristics was the dentist's ability to show empathy. In the quotes below, the dentists mention empathy along with the ability to understand the patient's circumstances and background. They associate these qualities with kindness and patience.

'you have to show empathy, you have to show understanding, you have to show an ability to accept the social framework the patient comes from.'
(13, pg.3, M)

'certainly you have got to be able to effectively communicate with the patient, so language skills, skills of empathy, skills of being able to understand the implications of the decision.' (8, pg.8, M)

'patience, kindness, empathy, all qualities you hope a good dentist got but not everybody has got.' (3, pg.6, M)

'What they need is, they need to have empathy with them, individual wants to talk to somebody...' (6, pg.4, M)

Another characteristic that can be grouped with empathy is the dentist's ability to like his or her patients and people in general:

'I think one, you got to like people' (9, pg.4, M)

This illustrates that dentists acknowledge the importance of a pleasant approach and disposition during a consultation. What is perhaps more interesting, however, is that empathy and communication skills are identified as higher-level characteristics, yet they are related to the foundations of good-quality care within the hierarchy rather than to PCC regarding information and choice.

Most participants agreed that good communication skills were necessary in order for a dentist to practice at the higher levels and were highly significant in helping dentists impart information and present choices to patients. These skills included the capacity to listen to what patients were saying as well as what they were not saying:

'I think they have to have good communication skills and that's a two-way thing; that's listening and being able to explain things clearly but also listening to the response of the patient and not necessarily audible stuff, sometimes it body language, sometimes its eye contact.' (14, pg.3, M)

'You need excellent communication skills' (4, pg.3, M)

'communication skills and getting on with people' (9, pg.4, M)

'I think something which is very important is the communication skills' (16, pg.3, M)

'I think the most important part of it will be good communication...Therefore, communication is the only skill and it comes through practice and confidence.' (2, pg.5, M)

The need for good communication skills was mentioned repeatedly during the interviews, in regard to both verbal communication and the ability to understand

a patient's unspoken worries and concerns. Participants did not elaborate on their precise meaning of 'good' communication skills except to occasionally mention the importance of not only providing information but also listening to the patient, whether verbally or non-verbally.

Another highlighted skill was the dentist's ability to tailor options and information to the individual:

'So that's ability to target choices, information and, and treatment to each individual based on their needs is probably the most important thing is to treat people as individuals.' (13, pg.3, M)

'...is to give people information and advice tailored to their need. So taking into consideration their restrictions, their limitations and to say to them right, these and these the choices you have that I'd like you to think about, the patient is fully informed and is able to make their choices themselves' (9, pg.2, M)

Dentists also made it clear that in addition to communication skills that focus on the patients, it was necessary to have the clinical skills required to carry out the treatment:

'the ability of the individual providing any care to deliver to the standard that is required.' (10, pg.1, M)

However, participants suggested that developing good clinical skills was easier for most dentists than developing good communication skills:

'like clinical dentistry you can take a person and most people will be able in the end to do the mechanical jobs that are required of them... but some people will be good at the beginning and be exceptional at the end and I think it is the same with being able to communicate information properly, and the thing is we all think we are really good at providing information.' (17, pg.5, F)

These views convey that dentists agreed that communication is an important skill – probably as important as clinical dentistry – that they must have to successfully practice at the higher levels. In addition, dentists seemed to acknowledge that considering there are dentists with excellent clinical skills and dentists with bad clinical skills, the same is true with communication skills. Dentists also discussed how these skills, as with clinical skills, can be learned.

Finally, it was suggested that the personality of the dentist, whether extroverted or introverted, can affect his or her ability to practice at the higher levels:

‘I mean a lot of it is personality, if you are extroverted, positive and you able to engage in conversations with people. This is a sort of social interaction, if you are good at that, if you make an effort at it, you try to be a little bit nicer, this goes along way...’ (6, pg.10, M)

‘personality requirements that come with trying to give this, you can try and teach it but really it is a personalities thing, certain personalities are better than others’ (9, pg.4, M)

Participants suggested that some personality types have naturally superior communication skills, and that this predisposition factors into the way they communicate with patients. Interestingly, although they did not offer details on which patient personality was helpful to PCC practice earlier, here they seemed to suggest that extroverted dentists would be more effective at providing PCC care.

This subtheme has presented several characteristics and skills that are necessary, from the perspective of the dentists in this study, in order for dentists to practice at the higher levels of the hierarchy of PCC. No disagreement was observed in their opinions, and most agreed that empathy and good communication skills were largely the most important skills for dentists who want to practice PCC.

Dentists as a barrier:

In addition to the aforementioned patient-related barriers, there are many dentist-related barriers that dentists have suggested and which can affect the possibility of a patient having full control of his or her care. For example, dentists might feel that they know which choices are in the best interest of the patient because they have the medical experience necessary to guide the patient during the decision-making process:

'So I think lv.4 is least useful because they need, patients need guidance and what's, what's the point of having a specialist and doctors if they not going to take your guidance. So they can't have full-control' (15, pg.4, F)

Another dentist-related barrier was the dentists' fear of losing their autonomy by giving full control to patients:

'maybe I'm feeling threatened that my autonomy is being taken away, maybe deep down that's what I'm concerned about, maybe I don't have the trust I should have in patients making their own decision and giving them complete control...' (7, pg.3, F)

Using technical terms was reported as a dentist-related barrier that could make it challenging for patients to understand the information provided during a consultation, making it harder for patients to be involved:

'But you are often working with somebody and you are putting things into clinical jargon and that is a language the patient clearly doesn't understand.' (10, pg.5, M)

This subtheme reveals that dentists acknowledged how they can be potential barriers to the adoption of PCC and discussed the ways in which they act as barriers to a more PCC approach.

In conclusion, this theme discussed how the dentists themselves affect the adoption of PCC, the kind of characteristics that are required in order for dentists to practice at the higher levels of the hierarchy and how the dentists themselves

can act as barriers to the adoption of PCC. This theme demonstrates that dentists cited communication skills and empathy as two main skills or attributes necessary for a dentist to practice at the higher levels of the hierarchy. Dentists also cited how their fear of losing their autonomy and authority as well as the medical jargon they use could all be barriers to the adoption of PCC as illustrated in the hierarchy.

4.5.4 The importance of context

This theme discusses the effects of the context of healthcare delivery on the practice of PCC, namely the differences between practicing in an NHS setting and in a private practice. In addition, it addresses dentists' perspectives on the different barriers that result from context.

Differences between NHS and private practice (context of healthcare delivery)

According to dentists, the many differences between NHS practices and private practices can affect the PCC level at which they practice. One difference that dentists repeatedly noted is that more time is allocated for consultations in private practice than in NHS practices:

'once you get into the private sector I think there is more time for discussion and so I think generally there will be a higher level that would be achieved when there is a more leisurely consultation' (4, pg.2, M)

'So if you are in an NHS practice where you have to see 50 patients a day to make a living then you are not going to go down this information pathway, it takes too long.' (9, pg.2, M)

'So they would be able to implement this hierarchy much more easily, and I think if you are a private practitioner this should be done anyway. So time and then obviously whether this is NHS or private' (20, pg.5, M)

There were also differences in the waiting time expected or accepted by patients in private practice:

'... [...private patients...] they expect not to wait, if they are arriving 10 minutes before the appointment they expect to be seen on time' (6, pg.21, M)

The same issue can be applied to the waiting areas:

'They are expecting a nice room with newspapers and magazines that aren't five years old and nice tables and carpets on the floor, no plastic chairs and all that.' (6, pg.21, M)

In a private practice, patients pay for services with their private funds; as a result, dentists argued, they usually expect to have more power in making a final decision compared to patients in the NHS. Dentists felt they were expected to leave the final decision up to the patient in private practice, but did not necessarily feel this way in the NHS.

'but in a practice setting not always. The patients ultimately decide what it is they want at the top level in many cases because they are paying for the treatment, which is different from a hospital practice usually.' (12, pg.1, M)

Differences also included the number of options provided to patients and how much control the patient has in relation to making the decision. Many dentists mentioned that patients in a private practice expect dentists to practice at level 4, and generally accept level 3 as a minimum.

'definitely if I went to the West End to get dental treatment I would expect to be in lv.3 or 4 because you are persuading the patients to invest a lot of their finances in the whole thing, we'd want them to be fully informed' (18, pg.3, M)

The interviewed dentists agreed that the context of healthcare delivery can affect the options available to patients as well as the time allocated for a consultation, which both affect the PCC level at which the dentists ultimately practice. The idea

here was that patients who pay for their care should and do receive a higher level of information and choice compared to NHS patients, where the context of the consultation limits the amount of choice and information that dentists could make available to these patients.

Context as a barrier:

In addition to patient-related barriers and dentist-related barriers, the interviewees suggested that there were external barriers that can make it difficult, if not impossible, for patients to possess full control of their care. An external barrier that could limit the choices available to patients was reported to be the context in which the healthcare was delivered. In an NHS setting, there was said to occasionally be a limit on the number of options that a dentist could carry out. Funding usually made these choices possible in a limited number of cases that fulfil certain criteria. Although the previous subtheme briefly addressed this (differences between NHS and private practice), it focused mainly on the differences between the two sectors of healthcare delivery and how these differences impact the adoption of the hierarchy and PCC in general. Here, the NHS context is considered a barrier in itself rather than compared to a private setting.

'But that is the question mark. You can't always do this because of the, I mean there are treatments here, where I see patients who need something done but the reality is that it is not going to be done anytime reasonably soon ... People with gum problems are going to have to get something less than they might do and they ask about it some of them, they know about it.' (6, pg.22, M).

'the problem is that the economics of the situation may mean that you only go so far up the hierarchy before you run out of funding or support for the treatment' (10, pg.1, M)

Cost in general affects the level of freedom that patients have when making a choice. This issue is particular to dentistry because of the co-payment, which is rarely an issue in NHS medical settings:

'So in all treatment planning, in all care planning there are levels which you can achieve but those levels are not always related to the patient in terms of their condition, they are related to what the patient or the funder or society is willing to pay for the treatment.' (10, pg.1, M).

The limited choices available to the patient can result from many factors, some of which were mentioned previously, such as a limited budget or a patient's comorbidities.

'very often there will [be]... only one option that I can offer and in that, in such circumstances make that offer and say the alternatives are nothing or what other people might be able to provide.' (17, pg.2, F)

Another barrier that dentists felt could limit the treatment choices available to patients was that it was occasionally students who would deliver the care in the context where these interviews were conducted. Depending on their year or amount of experience, they could perform only certain procedures:

'also I suppose what we can actually offer them ... is supervising students so there are limitations to what they are able to do so you got to bring that into the picture...' (18, pg.2, M).

In other cases, however, students reportedly needed exposure to different procedures, which could affect the choices that are made available to patients since teachers 'guide' the patient to make a choice that is beneficial to the students. In such a case, the patient was not in full or any control of his or her care.

'Students need to do a certain number of procedures because they need experience in order to graduate but also, in order to be a good dentist, you look at the patient, there is a tooth that could be crowned or could be left with a very large filling, students need experience in doing crowns, I look at that tooth and know it could go one way or the other, it could be crowned,

it could be left. I don't know which is the best answer and because I never will, except in 10 years time the filling broke or the crown survived or whatever. So sometimes I make the decision in the context of, with the patient, but I could persuade the patient to go down the line of the crown rather than leave it alone because in my opinion that might be a better deal for both the patient and the student' (1, pg.14, M)

It would appear, then, that in the setting in which this study was carried out, an additional factor was the need for dental students to gain sufficient experience in a particular procedure. Thus, the amount and type of information and choice offered to patients was further influenced by students' needs in this context.

The interviewed dentists repeatedly mentioned a lack of time as an external barrier that makes it harder for dentists to be more patient-centred or give full control to the patient.

'I think there are in a lot of practices there might be time-constraints' (14, pg.2, M)

'...so to do that you got to have the time, really think time is probably the most important thing' (3, pg.5, M)

This lack of time was seen as a problem especially for dentists practicing in an NHS setting, and particularly those in general practice.

'...but then time sometimes is a very big constraint for all of us, so 3 would be a good level to work at.' (16, pg.2, M),

'I think it depends on pressure, the number of patients you have to see in the session because the more time you have available the more you can get the patient involved in the process.' (18, pg.4, M).

This theme discussed how the context of healthcare delivery can affect the adoption of a PCC approach. Dentists listed many context-related barriers that can render the idea of patients possessing full control of their care difficult to

achieve, or at least hinder the process of having the patient in control of his or her care. The most common barrier that dentists recalled was time constraints, especially in an NHS setting. The higher levels of the hierarchy were seen as more adoptable in private settings.

4.5.5 Dentists' views on a hierarchy of PCC

This theme includes subthemes that cover dentists' perspectives of the concept of PCC, the hierarchy in general and the different levels in particular. It also includes how the dentists perceived their own level of practice and the levels of their peers as well as the motivational factors that might increase the likelihood of dentists adopting a tool that is based on this hierarchy.

Dentists' views of the PCC hierarchy

The dentists had a generally positive view of the hierarchy, although most considered it more useful for students and dental trainees than for experienced dentists.

'I would certainly use it on clinics teaching students yes, I think that would be quite useful. To be able to observe them doing this and being able to say to them: well ok you got up to here but maybe you just need to be, you know moving up to lv.3. So as a teaching aid it will be very helpful' (14, pg.6, M)

Dentists who did not think they needed the hierarchy usually cited their experience or the fact that they already practiced PCC.

'I think if you got somebody who is experienced and has been in practice for a very long time they would've done that by default.' (10, pg.10, M)

However, the hierarchy was viewed as a useful self-reflection tool for both dentists with less experience and all dentists in order to determine their current progress and future goals.

'I think in principle it is very good. I mean obviously the whole idea of you know PCC is obviously essential. So anything that can be done to encourage it ...if it's in the front of their conscious ... the fact that you flag it up to them and they are sort of thinking about it make some people change the way of doing things, it's got to be good...' (11, pg.8, M)

One issue that participants raised was the linearity of the hierarchy in its current form, which does not reflect real-life situations in a clinic. It was felt that dentists needed to move back and forth during a visit rather than only in one direction:

'I think it's too linear; I don't think its linear like this. I think patients hop around all the time and might change. It needs to be more of a network' (19, pg.19, M)

It was also recommended that more detailed descriptions of the various levels be provided to more clearly illustrate each level:

'So, me looking at that to begin with it was a bit vague, so maybe having examples and a bit more information would be useful.' (15, pg.7, F)

It was particularly felt that the word 'tools' in the third level required a better definition and that examples were necessary for the various tools available for dentists to use:

'I mean I think you need to be more specific by what you mean by tools' (10, pg.11, M)

Interestingly, although participants asked for elaboration on the meaning of level 3 tools and requested some examples, they generally placed their level of practice at level 3 or higher when asked to rate themselves.

'I'd like to think that I'm certainly at lv.3.' (14, pg.2, M)

This suggests either that there is some confusion regarding the content of level 3 or that clarification is required for those with less experience, who might be in greater need of a tool.

Regarding the utility of the hierarchy as the theoretical basis for a self-reflection tool, some participants suggested that the self-reflection tool might be difficult to use, as those most in need of the tool might lack the ability to reflect accurately on their level of practice.

'I'm feeling quite prejudiced now but my guess would be the people that really need to learn all this are the people who are not really good at self-criticism because they really haven't thought about what they've been doing.' (3, pg.10, M)

To combat this, one dentist proposed using the hierarchy as a form of appraisal by someone other than the dentist:

'you may... will not reflect very well on... actually I just need to be better. Whereas I think as I said in an appraisal situation it would be quite useful' (14, pg.7, M)

In summary, this subtheme indicates that dentists' generally liked the hierarchy but felt it would be more beneficial for dentists with less experience and dental students. They raised some issues with developing a tool for self-assessment or self-reflection purposes, citing the lack of ability of some dentists to accurately reflect on their own performance as the reason for this reluctance, and recommended having a tool that a third party can use as an appraisal form. Furthermore, offering some examples for each level was thought to be useful for more accurate application of any developed tool or of the hierarchy itself.

Dentists' perceptions of their own and their peers' levels of practice

As mentioned, most of the dentists who were interviewed shared that they mostly practiced at level 3.

'I'd like to think that I'm certainly at lv.3.' (14, pg.2, M)

'I would say lv.3 every single time.' (13, pg.2, M)

Interestingly, the idea of practicing at the same level every time challenges the core notion of placing the patient at the centre of care. Level three may not in fact be the one level that every patient wants or needs. Furthermore, some participants stated that they practiced at the highest level (level 4), but they usually did so with some reservations:

'I would take an active lv.4 when I think it's in their best interest, when the patient is demanding things that are not in their best interest then it's probably lv.3' (19, pg.6, M)

'I'd love for them to make their own, you know decisions, as long as they are sensible, you know in that it is not damaging their health' (19, pg.9, M)

It is evident from these two quotes that despite dentists noting that they practiced at level 4, their descriptions of it did not match the level's definition in the hierarchy. The collected data suggests that the participants assumed the view that patients can be in full control of their care as long as their choices are within the realm of their best interests as established by dentists.

Some dentists mentioned that they sometimes practiced at level 2:

'I'm hoping I work at lv.3, it is difficult sometimes to know how much you are guiding the patient and influencing their decision, which will take me to lv.2 I think.' (8, pg.4, M)

Here, it is apparent that dentists can be aware that they might be guiding the patients' choices, which would take them down one level. It is also evident here that, as mentioned, the majority of those who were interviewed envisioned themselves as practicing mostly at level 3, with the occasional level 4 and level

2. Interestingly, when the practices of other dentists were rated, however, they were perceived as practicing at a lower level, generally between levels 2 and 3:

'Most dentists in practice, particularly within general practice, would probably work along lv. 2 to 3. They would aspire to 3 but might tend to be more in the lv 2.' (1, pg.3, M)

Participants suggested that those who work in general practice might find it difficult to work at level 3 all the time and might revert to practicing at level 2 with most of their patients. This was mostly attributed to time constraints due to a heavier workload, which might make it challenging to list all options and information available and tailor them to the patient.

'So lv.2, I would have thought most dentists are working at lv 2' (13, pg.2, M)

Regardless, they agreed that few dentists still practice at level 1, which they described as an out-dated approach:

'I don't think we live too much in lv.1, there are probably people out there but they are hopefully a minority.' (1, pg.4, M)

This sub-theme discussed how dentists viewed their levels of practice and those of their colleagues. Most dentists felt that they practice more at level 3 of the hierarchy. Their peers sometimes practice at level 3, but mostly at level 2, though this was justified by the workload they likely face in a general practice. Level 4 was mostly used if the dentist saw the patient as sensible, and level 1 was found to be rarely practiced by the dentists who were interviewed or by their peers.

Characteristics or descriptions of the different levels of the model

The dentists generally viewed the first level of the hierarchy (information only) as an antiquated approach:

'I think probably 20 years ago it would have been lv.1' (18, pg.3, M).

Dentists remarked that practicing at level 1 can also lead to patient complaints, especially if there are any problems or complications resulting from the treatment or from any action taken by the dentist:

'If you don't let the patient know what are you going to do to them or what treatment options they have or how much it is going to cost for them to have treatment then obviously it's not going to go down well and in the long term you are probably looking at a very serious complaint.' (16, pg.3, M)

It was generally seen as an unbeneficial way of interacting with patients:

'it's a waste of time, it's not satisfying, it gives no interaction with patients... It's just a waste, completely a waste of time.' (13, pg.3, M).

In some cases, however, a small number of respondents felt that practicing at level 1 is acceptable, for example if the dentist is engaging with a patient who has learning disabilities:

'other patients, especially those with, we see here, maybe with learning disabilities..., they are going to be much more guided in the hierarchy. So they will be further down lv.2 and even possibly lv.1 where you are making the total decision for them.' (8, pg.3, M).

This poses interesting implications for the way in which patients with learning disabilities are viewed.

In terms of most patients, level 2 was considered the minimum legal obligation. Practicing below level 2 would be insufficient to demonstrate an agreement between the dentist and the patient.

'lv.2 they have to go that far because the patient has to agree to the treatment presumably. They are not going to do treatment without agreement.' (10, pg.2, M)

'lv.2 is the minimum that is acceptable in my view' (6, pg.10, M)

In addition, dentists mentioned that those with time constraints might ultimately practice at level 2:

'If you've got a heavily booked clinic then it probably comes down to lv.2' (18, pg.4, M)

Level 3, however, was where most dentists positioned their practice or aspired to practice:

'I'd like to think that I'm certainly at lv.3.' (14, pg.2, M).

They also viewed level 3 as the hierarchy's most useful level for both dentists and patients:

'The truth is from a clinical perspective as I see it, which may have a slightly paternalistic approach, lv.3 offers the greatest opportunity' (1, pg.4, M).

Dentists explained that practicing at level 3 would help them build trust between themselves and patients:

'In any good practice you would be using at least lv.3 with every patient because it builds trust, it builds a framework to be able to help that patient for years and years and years which we do at the practice' (13, pg.1, M)

Generally, dentists did not think level 4 was a particularly useful and applicable level at which to practice, from the perspectives of both dentists and patients. From a patient's perspective, dentists noted that level 4 was patient-dependent and that some patients were not willing or able to assume the sort of responsibility that is required of them in level 4 consultations.

'At lv.4, I found that very patient dependent' (8, pg.3, M)

Dentists cited that not all patients were able to make the right choices when given full control (level 4).

'I think that lv.4 makes it much more difficult for the patient and I think that they are more likely to be confused and maybe not make the right decision'
(7, pg.4, F)

This suggests that dentists generally think that some contribution on their part is necessary in order for the patient to arrive at the right decision, which from a dentist's perspective is one that does not harm the patient and that the dentist finds most beneficial for the patient. However, dentists had to take into account that patient risk values might differ from their own:

'I think the danger of lv.4 is if the patient ... or the patient demands, or requests a treatment that the clinician is not willing to provide or thinks that it's unsuitable, then the patient in full-control can be a little bit dangerous.'
(14, pg.2, M).

Dentists also appeared to think that, considering all of the constraints of the current health system, level 4 was more of an ideal than a reality. Dentists seemingly held the opinion that it is difficult, if not impossible, to have patients in complete control of their care, for various reasons:

'Lv.4 would be fine in a utopian world where everything is completely free and there are no constraints over what you can do' (10, pg.3, M).

'I think 4 as I alluded to is probably an aspirational thing, you know, I don't know if anyone is in full control of their care to that degree.' (5, pg.3, M)

'I think there is, if I were to redesign this hierarchy I would only leave it at three levels because I don't think patients are in full-control of their care'
(16, pg.4, M)

It would appear that the dentists were totally clear about level 4 being aspirational and not applicable in practice.

In addition, from a dentist's perspective, practicing at level 4 requires skills to communicate in two ways, which is also considered true for level 3:

'lv.1 and 2 obviously you have to have good ability to impart information but at 3 and 4 you have to have the added skills of receiving information back and then processing it in the right way. So yeah, I think this become two-way' (8, pg.8, M).

A final reason dentists felt it was especially difficult for a patient to have full control of his or her care was that the dentist is the one who provides information to patients and lists their options for them, so it is possible for the dentist to lead the patient, sometimes even without intending to, and therefore influence the patient's decision:

'but of course when you are explaining...you can guide the patient very easily to do what you want them to do. So it is very difficult to make it totally the patient choice.' (3, pg.2, M).

This quote illustrates that dentists have acknowledged that they can influence a patient's decision by presenting the choices and information in a certain way.

The dentists who were interviewed generally agreed that level 1 was no longer acceptable and was below the legal requirements, apart from cases where the patient has a learning disability. They felt that level 2 barely covered the legal requirements and should be practiced only when navigating time constraints or other limitations that obstruct or prevent practicing at level 3. Level 3 was considered the ideal level from the dentists' point of view, although they expressed that 'other' dentists might need help to practice at that level. Level 4 was described as an aspirational level that is difficult to practice in real situations.

Motivational factors for dentists to use the tool

Dentists cited certain factors that might increase the likelihood that they would use a tool that has been developed based on the hierarchy, for example witnessing their colleagues using the tool:

'I think the biggest thing that works with dentists is if they see other dentists doing it. It's all about the tribe' (6, pg.21, M)

Another suggestion was to offer financial incentives:

'they need, what they need to do I think, I think they are all capable of doing it but given the time to do it and you know probably financial incentives it has to be said if you work in general practice environment' (11, pg.4, M).

Some dentists also suggested that using the developed tool as part of dentists' CPD training would help incorporate the developed tool into the system:

'Certainly you can include it as an element of CPD were you can get benefits back from doing it and whether it can be I suppose incorporated in elements of the sort of the core requirements in as much as it can be embedded into things like I suppose complaints handling' (18, pg.8, M).

In addition, it was suggested that the developed tool be used as part of the required reporting by the NHS in a new contract:

'so in the new contract where we are dealing with computer-based reporting, these questions could be included in the requirement of the programme... so the report that would go to the government would indicate the level in the hierarchy that this dentist is operating on with that patient, that would work.' (4, pg.5, M)

Most of the suggested factors could be categorised as extrinsic motivational factors, with the exception of dentists following the example of other dentists, which can be considered an intrinsic motivational factor. In particular, dentists

viewed the option of incorporating the tool into the reporting system as the best method to have dentists use the tool in NHS settings.

4.6 Discussion

This chapter has presented and discussed the analysis of the qualitative interviews that have been undertaken in this study. In general, dentists exhibited an understanding of the meaning of the term PCC as well as a positive attitude towards the hierarchy in general, but they listed many barriers to its adoption, especially in an NHS setting.

1. Understanding Patient-Centred Care

This theme concerns dentists' definitions and understandings of the concept of PCC. Dentists' minimalist views of PCC as synonymous with empathy in this study are similar to those found in the literature. In a study with a similar population (Asimakopoulou et al., 2014), the researchers determined that dentists similarly defined PCC as being more empathic and 'nice' to patients. This definition of PCC is not restricted to dentists: HCPs in general understand PCC as mainly being 'nice' to patients and, as in the Berghout et al., (2015) study in which 34 HCPs rated the importance of eight dimensions of PCC, 'Treating patients with dignity and respect' under the *patient preference* dimension was one of the most important features of PCC, according to HCPs. This confirms the findings of previous work (Asimakopoulou et al., 2014, Scambler et al., 2014), which has noted that dentists feel as though they act in a PCC way but once asked about the concept, it is obvious that they have a limited understanding of its actual definition or its conceptual meaning. The novel finding in this theme was that obtaining informed consent from patients was tantamount to being patient-centred.

2. The role and influence of patients on the delivery of PCC

This theme discusses the influence of patients on the implementation of PCC, including patients' desires according to dentists, the characteristics of patients

who want to be more involved and patients as barriers to dentists becoming more patient-centred. Dentists mentioned that patients generally wanted to be treated with respect, and that they valued trust. The literature has supported this point with evidence for these claims (Epstein, 2006). A number of studies have revealed that patients assign high value to having and developing a trusting relationship with their dentists or HCPs (Thom et al., 2004, Mills et al., 2015). This trust, as some of the dentists noted, requires time to be built. Many other studies (Hill et al., 2014, Bonney et al., 2009) have also found this, and some have used the argument for having one doctor treat the same patient or family over time as an option available to patients rather than routinely changing the doctor who is assigned to the patient (Turner et al., 2007, Sinnott et al., 2013).

Dentists also explained that patients generally wanted information, but they did not necessarily want to make the treatment choice by themselves. This held true for some patients (Chapple et al., 2003, Flynn et al., 2006, Schouten et al., 2003), but generalising this view to all patients is not accurate and should not be the default when dealing with patients, according to our sample. Different patients have unique preferences for the amount of information they wish to receive from their dentists or doctors, and they differ in their preferred degree of involvement in the decision-making process (Levinson et al., 2005, Politi et al., 2013). In addition, some studies demonstrate that the same patient might change his or her preferences with time or changes in the situation (Chewning et al., 2012, Butow et al., 1997). Preconceived ideas that are based on patients' characteristics and whether these make them more interested in being part of the decision-making process or not should also be avoided, but as the interviews have revealed, dentists sometimes had these ideas in mind. They agreed, however, that there is sometimes a mismatch between a patient's particular characteristics, age or education and the preferences of people with the same characteristics, age or education.

There were some opposing views regarding patients' preferences, with some participants suggesting that older and less-educated patients would be more likely to leave the final decision to the dentist and view him or her as the expert. This view seems to be the most prevalent in the literature (Benbassat et al., 1998,

Swenson et al., 2004), but it is not always true and applicable: a patient's advanced age does not mean by default that he or she would not want to be part of the decision-making process, nor does it determine how much information he or she wants (Dardas et al., 2016, Bastiaens et al., 2007). In their study, Bastiaens et al., (2007) have suggested that even though older patients were generally highly interested in being respected and maintaining a trusting relationship with the HCPs rather compared to being part of the decision-making process, they nevertheless wanted to be given sufficient information. However, it is important to note that older patients are not all the same. This applies also to education; although many studies found education to affect a patient's preference for involvement; with younger patients more likely to want involvement in the decision-making process (Say et al., 2006), HCPs should not make generalisations based on patient education, age or any other characteristics (McKinstry, 2000). The novel finding here is that the interviewed dentists did not appear to agree whether age or education influence information and choice options. Rather, age and education are seemingly used to serve whichever argument the dental team might wish to advance. A more in-depth study should explore this issue in future.

In addition to patient characteristics, participants cited many other factors that might affect patients' levels of participation during a consultation, such as how much pain they were experiencing or the severity of their condition. In relation to condition complexity, dentists expressed opposing views. Some suggested that the more severe and complicated the patient's condition is, the more likely it will be that he or she would leave the decision-making to the dentist. Others have posited the opposite: a patient would want to be more involved if the condition were more complicated. Such opposing views are also present in the literature. In some cases, HCPs felt that the severity of a condition meant that patients would be less likely to participate in the decision-making process (Knight et al., 2013), but it had the opposite effect in other cases, with HCPs believing a condition's severity would result in patients preferring to be more involved and receive more information about their condition (Kenealy et al., 2011). As for pain, the dentists' views resembled those of HCPs and patients in general (Chapple et al., 2003, Pollard et al., 2015), namely that pain could make it difficult for patients

to want to participate, which increases the likelihood of them leaving the decision making to the HCP. The novel finding here is that dentists identify dental pain as a factor that might undermine the provision of PCC. Evaluating this viewpoint critically, it could be argued that a patient experiencing pain could be an even stronger reason for the dentist to provide PCC. Future work should pursue a more detailed understanding of the role of pain in PCC.

As for the patient acting as a barrier to the adoption of PCC, the participants in this study suggested this was the case for multiple reasons, most of which seem to be shared with other HCPs according to several studies (Legare et al., 2008). Barriers included the patient's lack of interest in engaging in the decision-making process, an issue that different HCPs, including dentists, as well as patients themselves have mentioned repeatedly in the literature (Legare et al., 2008, Chapple et al., 2003); it is usually cited to justify the lack of more involvement of patients in decision-making by HCPs, since patients themselves do not want to be involved (de Haes, 2006, Rosewilliam et al., 2011). A further barrier to dentists was the perceived lack of patient comprehension, or the patient's inability to accurately assess both a situation and the risk factors associated with options. This attitude and the perception of the patient as unable to correctly assess a problem and select the best option seems prevalent among other HCPs, as various studies have illustrated (Rosewilliam et al., 2011, Zeuner et al., 2015). Ting et al., (2016) have argued that patients with lower education levels are more likely to struggle to participate in the decision-making process or request information, but this should not be viewed as a reason to exclude them or neglect to provide them with information. Rather, it should encourage HCPs to use simpler, more accessible language to describe a problem and treatment options to patients, and direct them to other sources to help them understand the situation if necessary. In this way, these patients can play a more active part in the decision-making process and provide actual informed consent that includes comprehension of each choice and its consequences. While these findings support previous work in medicine that suggests that HCPs view patient characteristics as a barrier to providing PCC, the novelty here is that some of these barriers were not known to affect dentists prior to considering the differences between their context of healthcare delivery and that of other HCPs.

Furthermore, the dentists identified some issues which did not seem to arise in the literature in relation to the barriers to and facilitators of PCC; these include the effect of the patient having a previous experience of the illness on their degree of involvement in the decision-making process. It also includes the effect of how dentists perceived patient lack of commitment as a barrier to involving them more heavily in the decision-making, or at least led to narrowing the options they gave them.

3. The role and influence of the dentist on the delivery of PCC

This theme discusses which type of characteristics distinguish those who practice at the higher levels from those who do not. Furthermore, it examines how dentists might be barriers to PCC.

When asked which features distinguish dentists practicing at the higher levels of the hierarchy from those who do not, interviewees considered empathy with patients and good communication skills to be key qualities. This is consistent with the reports of other studies (Levinson et al., 2010, Hofstede et al., 2013).

Dentists acknowledged that they themselves can act as barriers to practicing PCC. However, the novel finding in this study is that the number of issues they suggested (lack of empathy, or inexperience) is considerably smaller than those barriers they felt originated from the patients themselves or from the context in which care was delivered. Many of the issues the dentists recalled as barriers are in line with findings in the medical literature and reveal that other HCPs seemingly share a similar perspective (Towle and Godolphin, 1999).

Dentists referred to some common issues, such as how the use of technical terms and jargon does not facilitate the sharing of information. Both HCPs and patients consider the use of jargon to be problematic (Schirmer et al., 2005, Ting et al., 2016), which has been widely reported on. Interestingly, the dentists here expressed that people other than themselves were likely to use jargon, so they appeared aware of the problem that jargon use creates and reported that this was a problem for others but not themselves. This is evidence of unrealistic optimism in terms of communication skills, whereby the reporting dentists appeared to

suggest that other people are worse than they are in communication (Weinstein, 1980).

Another barrier discussed in the literature (Legare et al., 2006) and cited by dentists is that HCPs fear they might lose their autonomy by giving more control to the patient. The fear of losing autonomy by offering patients more control has rarely been reported before; it is interesting that autonomy is a factor when considering PCC. Future work needs to explore this further, as it could be that dentists who feel more secure in their roles are perhaps more capable of granting control to patients and can be more responsive to patient needs, thus providing superior PCC.

Some of the dentists' suggestions seemed supported by evidence; for example, a survey study distributed to 6,300 U.S. dentists practicing in private settings explored the number of communication techniques they used. The study indicated that specialists, with the exception of paediatric dentists, used more communication techniques than general dentists (Rozier et al., 2011). The data were self-reported, however, so they must be treated with caution. The sample that was interviewed conveyed that they normally practiced at level 3 of the hierarchy, compared to general dentists who seemed to practice more at level 2. Rozier et al., (2011) have asserted that communication skill differences between dentists might be because specialists deal with more complex situations than general dentists, including risks and the possibility of complaints. The dentists in this study also noted this, but most of them attributed GDPs' second-level practice to time constraints. Although other HCPs have identified time constraints as an issue in a number of studies (Elwyn et al., 2000, Graham et al., 2003), it is more problematic for dentists. This is mainly because dentists usually have to carry out the active treatment as part of the consultation, so the visit is not only for diagnosing the patient but also for treating him or her, which is not the case in a medical visit. This could make it more difficult for dentists to interact with the patients and complicate the adoption of PCC compared to the medical and nursing fields.

4. The importance of context

This theme presents the effect of context on how and whether PCC can be easily adopted. It explores the differences between private settings and NHS settings as well as how each influences and affects the level of PCC that a dentist would choose or be able to practice at.

Dentists repeatedly cited the impact of the context of healthcare delivery on the adoption of PCC, which is also discussed in the literature (Knight et al., 2013). Issues such as time constraints can be found in many other studies (Elwyn et al., 1999, Edwards and Elwyn, 2004), especially in NHS settings, and are cited by HCPs as a main barrier to adopting a more PCC approach. Patients also refer to this issue as a barrier to advanced discussion of their problems and preferences (Ting et al., 2016). On the other hand, dentists noted that it was more possible to adopt a PCC approach in private settings because patients paid for their time, and therefore expected an appropriate service. Several studies have previously reported this issue (Angelopoulou et al., 1998, Berendes et al., 2011), and it is highly interesting. It would appear that PCC is a commodity that can be purchased, whereby the more patients spend, the more likely they are to receive a patient-centred consultation. The paradox of this argument is that most patients of course pay for part of their dental treatment, even when receiving it through the NHS. It would also appear that the co-payment required for dental treatment does not currently facilitate the adoption of a more PCC service; rather, dentists who were interviewed here talked about the cost issue, how it could affect patient preferences and how it could possibly lead them to the selection of an option that is not ideal but is motivated by the cost issue. Dentists did not only discuss the cost issue and its potential effects on patient options but also how it could limit the options available to present to patients as a result of the hospital or clinic budget. They linked this to the difficulty of practicing at the higher levels of the hierarchy, asserting that it would not be possible to perform treatment that the hospital's current budget does not list or approve. This is a novel finding and poses a dilemma for the dental team. On the one hand, they are expected to offer a PCC service to patients, as evident in all the guidance documents that support their practice. Yet, the context in which they are working simultaneously limits the choices that they can make available to patients. This is a novel observation that

implies that dentists are forced into a conflicting position in a system that dictates that they need to be patient-centred while at the same time limiting the type of care they can offer patients.

Finally, the specific context of this study (a teaching hospital) gave rise to a final novel finding: students treating patients seemed to have a direct effect on the treatment options that were made available to patients, depending on student ability and need. The intriguing ethical dilemma in this case is at which point decisions are made to suit the patient, and when these decisions really suit the student. Again, the dentists who were interviewed here provided a unique perspective of PCC in real clinical practice within a hospital, highlighting observations that are likely to impact the understanding of PCC in this specialised context.

5. Dentists' perspectives on the hierarchy of PCC

This theme explicitly discusses dentists' views of the PCC hierarchy, the level of the hierarchy at which they place themselves, their thoughts on each level and potential motivations to use this hierarchy or a tool that is developed on the basis of it. All findings pertaining to the hierarchy are novel in that no previous work has asked dentists to comment explicitly on any one model of PCC. In general, dentists agreed that the hierarchy could be useful as a tool for the adoption of PCC and as a way of defining the concept in dental settings. The second key finding was that the dentists who were interviewed often felt that they already practiced PCC and, as such, that the hierarchy might have little use for them. Interestingly, those dentists who made this comment continued to suggest that this model of PCC would be particularly useful for other, less experienced dentists. Thus, although they felt that they themselves might not need to use the hierarchy, other dentists would probably benefit from it. This does not seem to be an issue with dentists only; another study has found that, despite evidence suggesting otherwise, HCPs can feel that they provide their patients with sufficient information and involve them in the decision-making process, and they therefore have no need to learn more about PCC (Towle and Godolphin, 1999). This work is the first study to report on a similar finding in dentistry.

When asked to rate their level of patient-centredness using the hierarchy, most of the dentists placed themselves at level 3, which they incidentally found to be more useful for both patients and themselves. It is possible that interviewees practiced at the higher levels of the hierarchy and adopted a more 'shared decision-making' approach, which could be a consequence of teaching at an academic hospital and therefore being up-to-date with the current recommended style of communication. The other possible reason that most of the dentists rated their level of practice towards the higher end of the hierarchy could be a self-assessment bias, which multiple studies have demonstrated can happen to HCPs and others (Dunning et al., 2004, Walfish et al., 2012). This self-assessment bias could potentially be attributed to optimistic bias in particular, whereby people tend to believe they perform better than the average person (Weinstein, 1980). This may imply a need to rethink the labelling of the levels in the hierarchy or the need to include a clear, precise description of each level in order to combat self-assessment bias. The observation that dentists perceive themselves as practicing at higher levels of PCC while their colleagues tend to practice at lower levels is novel, regardless of whether that is a self-assessment bias or truly reflective of clinical practice, and has not been previously reported in dentistry. Dentists seemed reluctant to give patients full control. They expressed concern that patients might inadvertently cause self-harm if granted full control of treatment choice, or that they might ask for treatments that were not possible to deliver. Similar reluctance to yield power to the patient is present in medicine, as doctors have reported reluctance to surrender full control to the patient (Elwyn et al., 1999). This unwillingness has resulted in dentists calling the fourth level of the hierarchy 'aspirational' and viewing it as an impractical way of carrying out a consultation. Thus, dentists' perceptions of level 4 differ from its original definition in the hierarchy: that patients are enabled to make choices regardless of whether the dentist deems the choice to be 'sensible'. This was helpful feedback; it could be that the model, although theoretically complete, is insufficiently pragmatic at this level.

At the same time, dentists agreed that information alone was not enough, and that a consultation pitched at level 1 could lead to possible complaints, especially if a problem were to arise. This issue, acknowledged by dentists, is supported by

different studies in medicine (Elwyn et al., 1999, Levinson et al., 1997). The novelty here is the direct reporting and acceptance of the fact that simple information provision in a dental setting is likely to result in patient complaints in the future.

4.7 Conclusion

This study has provided some valuable insights into perceptions of PCC, the potential adoptability of the hierarchy in a dental setting and the barriers and possible facilitators that could improve or hinder its adoption.

The results of this study suggest the following:

- There is a lack of a shared, sophisticated understanding of what constitutes PCC, but practicing dentists do not consider this a problem.
- A lack of shared understanding as to what PCC might entail occurs alongside an almost universal conviction that the individual being interviewed practices PCC.
- Communication skills are central to the delivery of PCC; however, colleagues who are less experienced than those interviewed may encounter difficulties in communicating appropriately, especially when jargon is used.
- Study participants linked many of the problems with the delivery of PCC in practice to external factors in the form of either patients or context and external environment.
- Patient-centred care is more likely to be delivered at higher levels where patients are seen privately.
- Participants rated themselves as practicing level 3 PCC or higher, while 'others' were identified as practicing at lower levels. This suggests a selfreport measure may not be appropriate if there is a high likelihood of unrealistic optimism with regard to dentists' self-ratings.
- The results of this study suggest that a self-reflection tool may be more effective than a self-assessment tool in this context.

The findings of this chapter and those of the literature review pave the way for the development of a tool, based on the Scambler and Asimakopoulou (2014) hierarchy of PCC. The work that follows presents the development of this tool as

well as parallel work aimed at assessing the level of communication skills of dental students.

Chapter 5: Examination of Dental Students' Assessments of Communication Skills Using a Medical Communication Competence Scale

The literature review (Chapter 2) and the interviews conducted with dentists (Chapter 4) have demonstrated that PCC rests heavily on good communication skills. The qualitative analysis in Chapter 4 in particular reveals that practicing dentists considered people who are less experienced than themselves to perhaps need further support in their delivery of PCC.

Based on these two sets of findings, it was decided to explore the ability to detect good and poor communication skills in a standard consultation among a sample of dentistry students, rather than practicing clinicians.

Although student communication skills could have been assessed directly by e.g. observing them in role play, it was reasoned that their performance in such a situation might be confounded by the attitudes and demeanour of the different actors. In addition, practical constraints of assessing a large number of students through role plays led to considering a study where all students rated an identical video clip of a dental consultation. The study is discussed in detail next.

This chapter presents work on dental students' abilities to assess another dentist's performance in various areas of communication.

5.1 Introduction

Dentistry lacks the robustness in communication studies that can be found in the fields of medicine and nursing (Newton and Brenneman, 1999, Nestel and Betson, 1999). Not many studies (Rouse and Hamilton, 1990, Rozier et al., 2011) have addressed communication between the patient and the dentist during a consultation, and even fewer have examined the different dimensions of PCC, such as viewing the patient holistically, adopting a more shared decision-making approach in dentistry than in other medical professions, such as nursing and medicine (Chapple et al., 2003, Johnson et al., 2006). The area of communication

in general needs to be studied more in dentistry, and the communication skills of dentists warrant more attention (Hannah et al., 2004). Patients seem to value a good relationship with their dentist as much as they value the more technical aspects of a consultation (Anderson, 2004). Furthermore, poor communication between the dentist and the patient might produce undesirable results, such as lack of trust, complaints and recurring visits (Rozier et al., 2011).

As Sondell and Soderfeldt (1997) have noted, the lack of a theoretical model of communication may explain the lack of empirical evidence in dentistry. They have proposed that there is a lack of a theoretical model for communication developed specifically for the dental context, and most of the models included in their work did not cover or focus on the act of communication between the patient and the dentist. Rather, they engaged with other issues, such as patient attendance behaviour, patient satisfaction and quality of care in general. Even though their article was published 20 years ago, recent studies indicate that this is still a problem (Apelian et al., 2014, Ayn et al., 2017).

It is well known that the interaction between the dentist and the patient can impact many outcomes, such as patient satisfaction with the dentist and the consultation as a whole as well as patient adherence to the dentist's instructions and suggestions, which in turn can affect their condition and their overall treatment outcomes (Sondell and Soderfeldt, 1997, Waylen et al., 2015). It is also known that good communication is a foundation of PCC, with most models of PCC heavily stressing it (Tongue et al., 2005). For these reasons, this research started with an examination of the dental students' abilities to detect features of good communication. It was expected that, when compared with experts, dental students who were asked to rate the quality of communication in a dental consultation would score a dentist-patient communication clip differently. This hypothesised difference was based on previous work that has demonstrated a usual difference between students' scoring and experts' scoring of a communication (Memarpour et al., 2016). This study by Memarpour et al., (2016) assessed the communication skills of dental students in their fifth or sixth years of study using a cross-sectional survey that was completed by three groups: the dental students (110 students), the patients (110 patients), and an observer. The

communication skills of the dental students were assessed at the beginning of the interview, during it and, finally, at its end. The study evidenced significant variation between scores of the three groups. Patients were found to be the group that gave the highest score, followed by students and, lastly, the observer. Although this study evaluated dental students' communication skills rather than their abilities to assess the communication skills of another dentist, it used a similar method in that it compared the scoring of the students to that of an observer and found differences between the two scores. Differences between the scorings of experts and students can be found many in studies conducted with medical and nursing students as well (Gude et al., 2017, Baribeau et al., 2012).

The aim of the study was to offer dental students a situation in which they could assess a dental consultation by another dentist by using a standard communication scale, and to compare their assessments with those of a panel of researchers. The study sought to examine whether students were in any way able to differentiate between aspects of the communication episode (e.g. information giving and information verifying) and, if so, whether their assessments of communication quality differed when compared to an expert panel assessment of the same. So, the study examined students' performance versus experts' performance in assessing communication skills, by looking at communication as a process of a series of communication clusters. Also, more specifically, as a set of distinct communication events. The study outcomes were dental students' perceptions of a dentist's communication skills during a consultation, using a Medical Communication Competence Scale (MCCS) (Cegala et al., 1998) as the assessment method. This was an exploratory study that employed an online survey to collect data from participants.

The research hypothesis tested here is that dental students' ratings of a dental communication clip would differ significantly from ratings provided by a panel of experts in communication.

5.2 Aim

The aim of this study is to gauge dental students' awareness of good communication by having them assess the communication skills of a third party

5.3 Methods

5.3.1 Design

This was a cross-sectional survey study conducted at the Dental Institute, King's College London.

Ethics:

Ethical approval to conduct this study was granted by King's College London, reference number: LRS-15/16-2826. The data collection took place between July 18, 2016 and July 29, 2016.

5.3.2 Participants

The target population for this study was dental students attending the Dental Institute, King's College London who were in their third, fourth or fifth year of study. This sample was chosen mainly because it was possible to assume that students in their third, fourth and fifth years would be familiar with the common features of a good consultation, compared to younger students, and this situates them well for assessing the quality of a consultation. They would already have seen and interacted with patients in clinics and would have studied communication skills for at least two years as part of the dental curriculum. As such, they were not expected to be totally naïve to communication issues, but they were also not anticipated to have the clinical experience of the dentists who were interviewed in the previous study and who felt that those who are less experienced would benefit from support in their practice of PCC. The student sample was also a pragmatic choice, as they were readily available and keen to take part in research.

Student performance was set for comparison with that of an expert panel. This panel was comprised of three researchers: the current researcher and her two

supervisors. The panel was deemed an appropriate comparator, as it had experience in assessing dentist communication (e.g. in OSCEs), teaching communication (KA and SS) and attaining a deep understanding of the literature on the topic. However, the panel differed from the student panel in terms of age and the fact that the panel were not clinically trained dentists.

5.3.3 Materials

The scale used to examine the communication skills assessment abilities of dental students is the MCCS scale of Cegala et al., (1998). This survey was selected mainly because it focuses on the communication aspect in a medical consultation rather than on other aspects, such as a HCP's technical skills or general interpersonal skills; these are the focus of a considerable number of surveys assessing consultations, such as those measuring patient satisfaction, or quality of life surveys.

This survey categorised the communication that occurred during a consultation into two types: *information exchange* and *socioemotional talk*. The information exchange, which Cegala (1997) has called the 'heart of the medical consultation', was defined as the process of HCPs receiving information from their patients about their symptoms in order to assess and arrive at the diagnosis of the condition, and proceeding to devising a treatment plan. This also concerned the patient receiving information from their HCPs on their condition and the details of the suggested treatment. This process of information exchange was further divided into three main components: *information seeking*, *information giving* and *information verifying*. *Information seeking* covers the aspects of the consultation that are related to how the information was gathered. *Information giving* encompasses how both parties provided the information, such as sharing information on the diagnosis, treatment and symptoms. *Information verifying* items checked whether the patient and the HCP had correctly understood the information provided or received. These components were developed after a review of the literature on the medical encounter (Cegala, 1997).

This is a self-report scale that was originally developed for use by doctors and patients in general practice settings (Boon and Stewart, 1998). The scale has two versions: one to be used by the doctor and the other to be completed by the patient. Each assesses perceptions of one's own communication competence and the competence of the other party. Each version therefore has some items pertaining to the person filling the questionnaire and how well they communicated, while the other half of the scale includes items that assess their perceptions of how the other party in the consultation performed and how the other party communicated with them. The items in this scale are in four clusters: *information giving*, *information seeking*, *information verifying* and *socioemotional communication*. The 'doctor version' has 37 items in total: 24 items to assess self-competence and the remaining 13 to assess the 'other-competence', which entails assessing the patient involvement in the consultation. Thus, in the 'doctor' version, the doctors were asked to rate themselves in the first part and their patients in the second. The scale uses a seven-point Likert scale rating, with 1 as the lowest rating ('strongly disagree') and 7 as the highest rating ('strongly agree'), in order to evaluate perceptions of communication skills. The higher the score is, the better the ratings will be for the communication skills. There is also the option of 'N/A' if the item does not apply to a particular consultation. Typical items under the *information giving* cluster asked if the doctor provided a good explanation to the patient in relation to 'the diagnosis of his or her medical problem'. Under the *information verifying* cluster, items asked whether the doctor did a good job of 'reviewing, or repeating, important information for the patient'. The *information seeking* cluster included items such as whether the doctor did a good job of 'asking questions in a clear, understandable manner', while the *socioemotional* cluster items included questions such as whether the doctor did a good job of 'contributing to a trusting relationship'. The reliability coefficients, as reported in the development article (Cegala et al., 1998) for the doctor's self-competence part of the scale, were as follows: 0.86 for information giving; 0.75 for information seeking; 0.78 for information verifying; and 0.90 for socioemotional communication. The tool in its original form appears in Appendix 4.

For this study, only the 24 items grouped under '*doctor self-competence*' were used, and this part of the scale was renamed '*dentist self-competence*'. The items

classified under 'other-competence', and which rated HCPs' perceptions of patient communication during the consultation, were not included since this aspect of communication was beyond the scope of this study. For this study, rather than the dentist rating himself or herself through the self-competence scale, students rated the dentist with this scale.

The initial wording of 'doctor' was replaced with 'dentist', while 'I' was substituted with the word 'dentist' or the appropriate pronoun, such as 'his' or 'he'. For example, the item from the original scale that stated *'I provided a good explanation of the following to the patient'* was reworded to read *'The dentist provided a good explanation of the following to the patient'*.

Another example of a change to the items themselves was exchanging the word 'my' for 'the dentist' or a suitable pronoun. For example, in the original scale, the item read *'making sure the patient understood my explanations'*, which was modified to read *'making sure the patient understood his explanations'*.

The tool, as adapted for use in a dental consultation, appears in Figure 5.1.

For each item, please circle the most appropriate alternative. If you do not believe an item is relevant to this particular interview, please write N/A next to the item.

Strongly agree 7	Agree 6	Slightly agree 5	Not sure 4	Slightly disagree 3	Disagree 2	Strongly disagree 1
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The dentist provided good explanations of the following to the patient:

1. The diagnosis of his or her medical problem
2. The causes of his or her medical problem
3. The treatment for his or her medical problem
4. The advantages and disadvantages of treatment options
5. The purpose of any tests that were needed
6. How prescribed medications will help his or her problem
7. How to take prescribed medication
8. The possible side effects of the medication
9. The long-term consequences of his or her medical problem

The dentist did a good job of:

10. Reviewing, or repeating, important information for the patient
11. Making sure the patient understood his explanations
12. Making sure the patient understood his directions
13. Checking his understanding of information the patient provided
14. Encouraging the patient to ask questions
15. Asking the patient the right questions
16. Asking questions in a clear, understandable manner
17. Using open-ended questions
18. Using language the patient could understand
19. Being warm and friendly
20. Contributing to a trusting relationship
21. Showing the patient he cared about him or her
22. Making the patient feel relaxed or comfortable
23. Showing compassion
24. Being open and honest

Figure 5. 1: MCCS used in the survey (minor modifications include changing the 'I' in the original scale to 'dentist')- adopted from (Cegala, 1998)

The clip that was shown to students who were asked to rate the dentist communication was 11 minutes and 33 seconds long and sourced from YouTube: <https://www.youtube.com/watch?v=r1CrD096ZHM>. The clip was made by the University of Michigan and was publicly available. It depicted a consultation between a patient who had dental wear and a dentist. They took part in an assessment consultation where no treatment was carried out. Thus, the session

covered a visit, which was mostly a diagnosis of the condition and discussion of further necessary tests, as well as possible ways to deal with this issue after receiving the results of the tests. This clip was selected because it was one of the best clips available that illustrate a dental consultation in terms of content and brevity. The voice and visuals were rated very good by the expert panel, and the length was deemed acceptable – not so short that it did not cover the different aspects of an average consultation, but not so long that it might make it difficult to recruit participants. Also, if it had been longer than an average consultation, it might not have been representative of the typical consultation that dental students are likely to encounter, and would most likely be an ideal version of a consultation. The clip was developed using U.S. rather than UK actors.

5.3.4 Procedure:

A global email was sent to undergraduate dentistry students in the Dental Institute. The email invited students in their third, fourth and fifth year of study to take part in the survey. It included a brief description of the study and the incentive for participation, a £10 Amazon voucher to be emailed after the data collection (Edwards et al., 2009b). Students interested in taking part were asked to email the researcher for further information and to receive the link to the survey. When a student emailed to express interest in participating, the researcher sent a reply email with the information sheet attached (included in the Appendix 5) and a link to the survey. A reminder email was sent one week after the first email to all undergraduate students to alert them to the deadline date, after which no further submissions would be accepted.

The survey was developed and distributed using Qualtrics software. In the survey, the students had to watch the clip described above. In order to ensure that students did in fact watch the clip before rating it, three questions related to clip content had to be answered correctly before they could proceed to the next screen. This ensured that there was little chance for random responses to the questions that assessed students' ratings of communication. After watching the clip, the students were asked to rate the dentist's performance in communicating with the patient by using the MCCS 'doctor self-competence scale'. Sixty-four

students completed the questionnaire. After responses were collected, a screening process was carried out to exclude any responses that did not satisfy the following criterion: the questionnaire should have been completed in at least 11 minutes 33 seconds, which is the length of the clip, to ensure that students actually watched the clip and did not randomly answer the filter questions. After this screening process, a total of 56 completed questionnaires were eligible for inclusion, leading to a valid response rate of 11.99% out of all undergraduate students in their third, fourth, or fifth year of dental school.

As a comparison, the panel of three researchers (SAR, SS, KA) with experience in communication and PCC watched and rated the same clip independently. Their ratings formed the comparative standard against which students' scores were evaluated.

5.3.5 Statistical analysis

After entering and filtering the Likert scale data, which was treated as continuous data as is common in the field (Rhemtulla et al., 2012), SPSS was used to calculate descriptive statistics and generate graphs for each item on the scale. In addition, SPSS was employed to compare the means of the student sample with the researchers' ratings of the consultation through a single sample t-test. The single sample t-test was appropriate since the researchers' mean here was treated as a gold standard for comparison with the student sample performance. In line with single sample t-test rationale, the test assessed whether the student sample was drawn from the same population as that of the researchers' (null hypothesis) or whether the student sample performance yielded a different group of respondents (experimental hypothesis).

Finally, overall performance by cluster of communication (*information giving, information verifying, information seeking and socioemotional communication*) rather than by individual item was also assessed in order to examine student performance in general in addition to the by-item analysis reported earlier.

5.4 Results

In this section, the first part presents reliability statistics for the scale and the second part features descriptive statistics (the scoring of each item in the MCCS by students and by researchers). The descriptive scoring of the four clusters of the measure by students and by researchers is subsequently presented.

The total number of students in their third, fourth or fifth year at the Dental Institute is 467, 64 of whom responded to the invitation and completed the questionnaire. Thus, the response rate was 11.99%. This is a low response rate, but this was expected since it was an online survey (Couper, 2000, Crawford et al., 2001).

1. Reliability statistics for the measure

Data from the students were analysed to establish the measure's internal consistency using Cronbach's alpha.

In this study, the Cronbach's alpha for the scale overall was excellent at 0.889. For the *information giving* cluster (items 1-9) it was .711, which is very good. For the *information verifying* cluster (items 10-13), the Cronbach's alpha=.860, which is excellent. For the information seeking cluster (items 14-17), the reliability was poor, with Cronbach's alpha= .454. For the final cluster, socioemotional communication (items 18-24), the reliability was excellent, with the Cronbach's alpha= .892.

2. Descriptive and inferential statistics for the measure, by item

The following table displays the scoring of each item in the MCCS by the three researchers. The scoring is made on a seven-point Likert scale, with 7 being the highest score and signifying excellent communication. Mean and standard deviations (SD) for the experts' panel follow their individual raw scores.

Table 5. 1: *MCCS raw mean (and SD) scores by the researchers' panel*

Item	Rater 1 (R1) score	Rater 2 (R2) score	Rater 3 (R3) score	Mean of (R)	SD of (R1, R2,R 3)
The dentist provided good explanations of the following to the patient:					
The diagnosis of his or her medical problem	2	2	5	3	1.73
The causes of his or her medical problem	5	5	5	5	0
The treatment for his or her medical problem	3	3	3	3	0
The advantages and disadvantages of treatment options	2	2	2	2	0
The purpose of any tests that were needed	3	3	5	3.67	1.15
How prescribed medications will help his or her problem	4/ NA	n/a	n/a	n/a	0
How to take prescribed medication	4/ NA	n/a	n/a	n/a	0
The possible side effects of the medication	4/ NA	n/a	n/a	n/a	0
The long-term consequences of his or her medical problem	2	2	5	3	1.73
The dentist did a good job of:					

Reviewing, or repeating, important information for the patient	2	3	5	3.3	1.53
Making sure the patient understood his explanations	3	3	3	3	0
Making sure the patient understood his directions	3	2	3	2.67	.58
Checking his understanding of the information the patient provided	3	3	5	3.67	1.15
Encouraging the patient to ask questions	2	4	5	3.67	1.53
Asking the patient the right questions	5	5	6	5.3	.58
Asking questions in a clear, understandable manner	5	5	6	5.3	.58
Using open-ended questions	3	3	5	3.6	1.15
Using language the patient could understand	2	1	3	2	1
Being warm and friendly	2	3	5	3.3	1.53
Contributing to a trusting relationship	5	4	5	4.67	.58
Showing the patient I cared about him or her	2	2	5	3	1.73
Making the patient feel relaxed or comfortable	2	2	3	2.3	.58
Showing compassion	2	3	3	2.67	.58

Being open and honest	5	5	6	5.3	.58

It would appear that Raters 1 and 2 were relatively consistent in their ratings across the clip, while Rater 3 was sometimes more generous in the ratings. Looking at the scores, it would appear that the researchers rated the performance as high in some areas, such as providing a good explanation of '*The causes of his or her medical problem*' to the patient, which all three researchers rated as 5 ('slightly agree'). They also gave the dentist high ratings in '*Asking the patient the right questions*', '*Asking questions in a clear, understandable manner*', '*Contributing to a trusting relationship*' and '*Being open and honest*'. They gave the dentist a below-average rating in every other item, except for when the third researcher assigned a 5 in the following items: providing a good explanation of '*The diagnosis of his or her medical problem*' and '*The long-term consequences of his or her medical problem*' to the patient; '*Reviewing, or repeating, important information for the patient*'; '*Checking his understanding of information the patient provided*'; '*Using open-ended questions*'; '*Being warm and friendly*'; and '*Showing the patient he cared about him or her*'. She also gave him a 5 in '*Encouraging the patient to ask questions*' but, in this item, the second researcher also gave him a 4 ('not sure'), while the first researcher gave him the low score of 2, which means 'disagree'.

The researchers' mean rating for each item was then compared with the student sample's mean rating for each of the clip items by using a single sample t-test. A conservative alpha level (α) of 0.01 was used for all 2-tailed comparisons to guard against Type 1 error. These data (Mean, SD and p. value) appear in the following histograms and narratives.

Below are graphs that visually depict the distribution of scores for each item; score 0 here represents N/A, 7 is strongly agree and 1 strongly disagree.

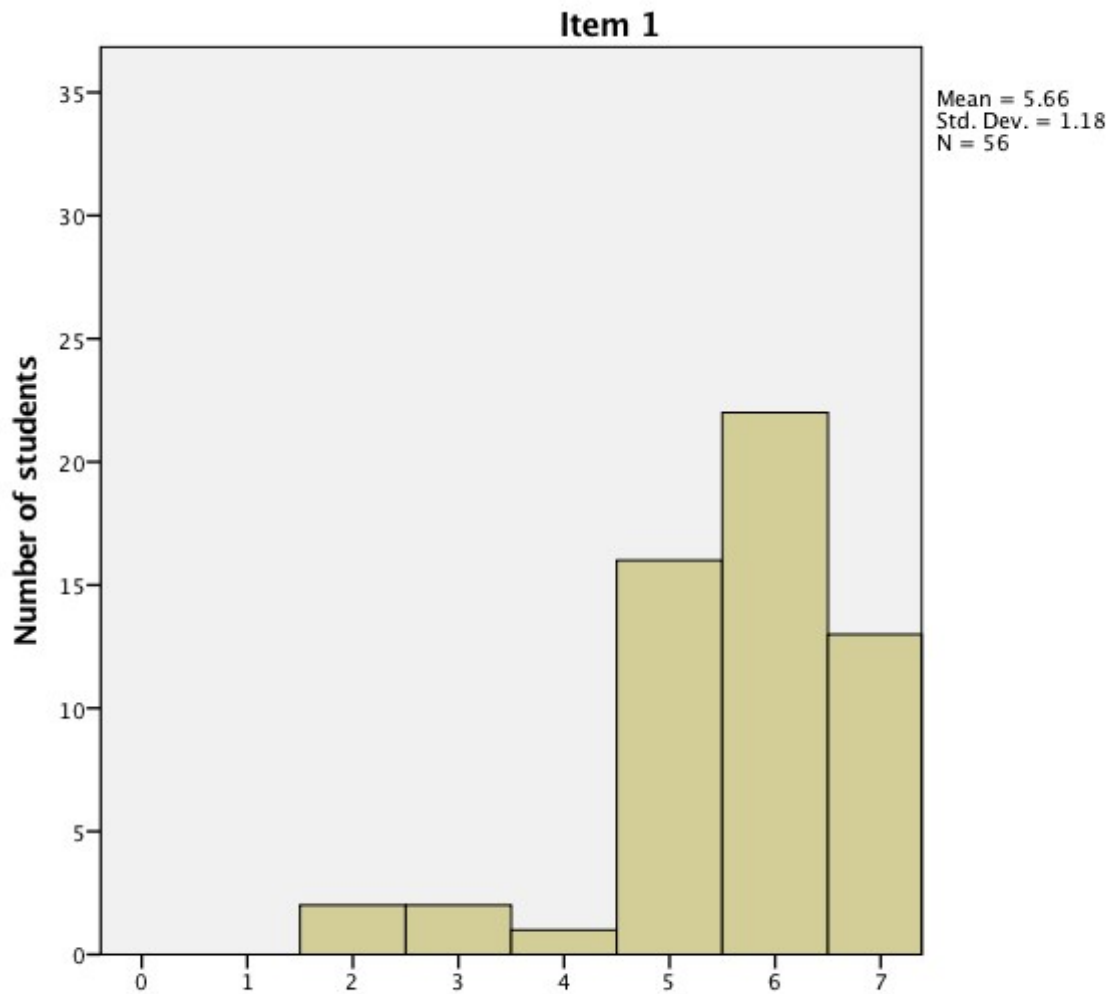


Figure 5.2. 1: Item 1: The dentist provided a good explanation of the following to the patient: 'The diagnosis of his or her medical problem'.

As can be seen from the graph, most students gave the dentist a high rating for this item. While comparing the students' mean of 5.66 (SD=1.18) with the researchers' mean of 3 (SD=1.73) shows a difference in opinions, there was not much variation between the students themselves, most of whom gave it a score of 5, 6 or 7. The difference between the students' and researchers' scores is significant for this item, [$t(55)=16.88, p<.001$].

The next graph shows the scoring of the second item in the scale by students; this item is classified under the information-giving cluster.

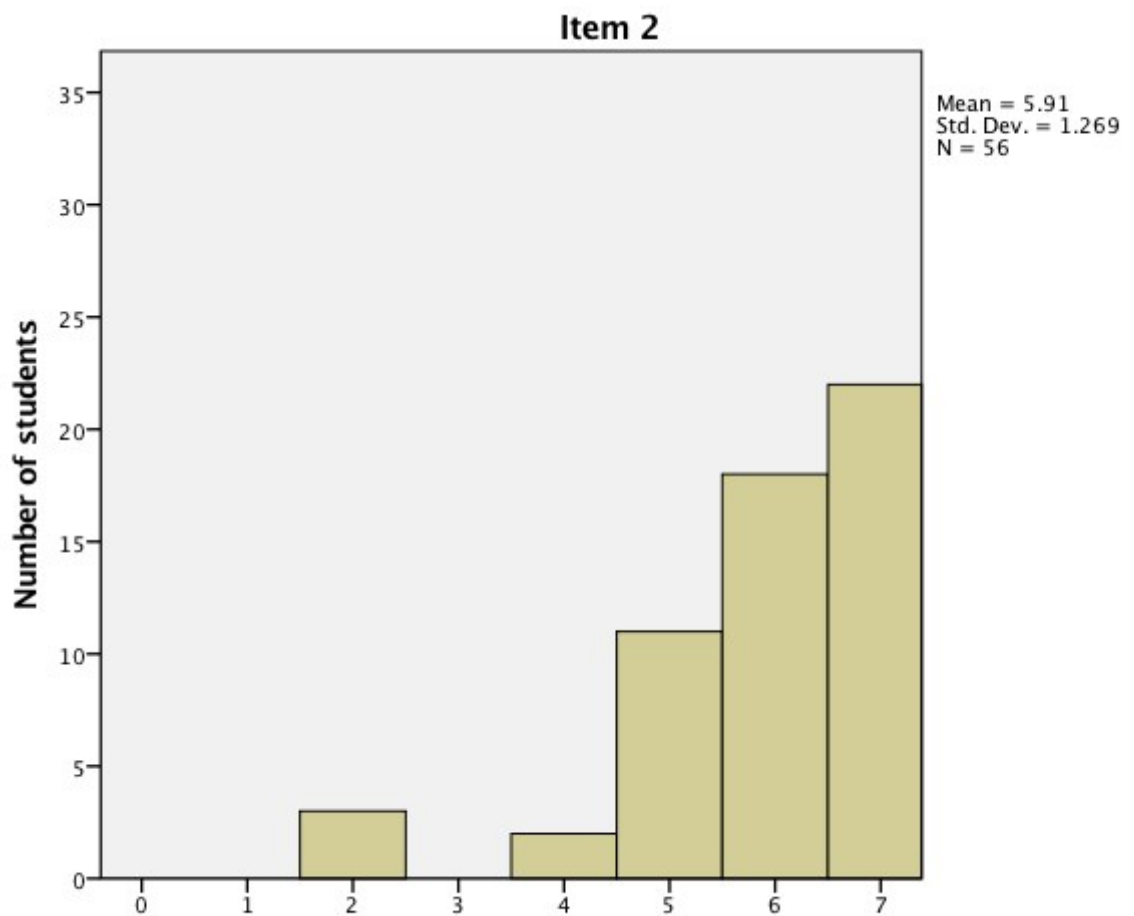


Figure 5.2. 2: Item 2: The dentist provided a good explanation of the following to the patient: 'The causes of his or her medical problem'.

This item was scored highly by the students ($M=5.91$, $SD=1.27$), which made it one of the highest scored items in the scale. Most of the students scored it 6 or 7 with some scoring it 5, and very few students gave a score of 4 or 2. The researchers gave it ($M=5$, $SD=0$), which is also a high score. Nevertheless, the difference between the students' and researcher mean scores for this item is also significant, [$t(55)=5.37$, $p<.001$].

The following graph shows how students scored the third item, illustrating which scores they gave the dentist.

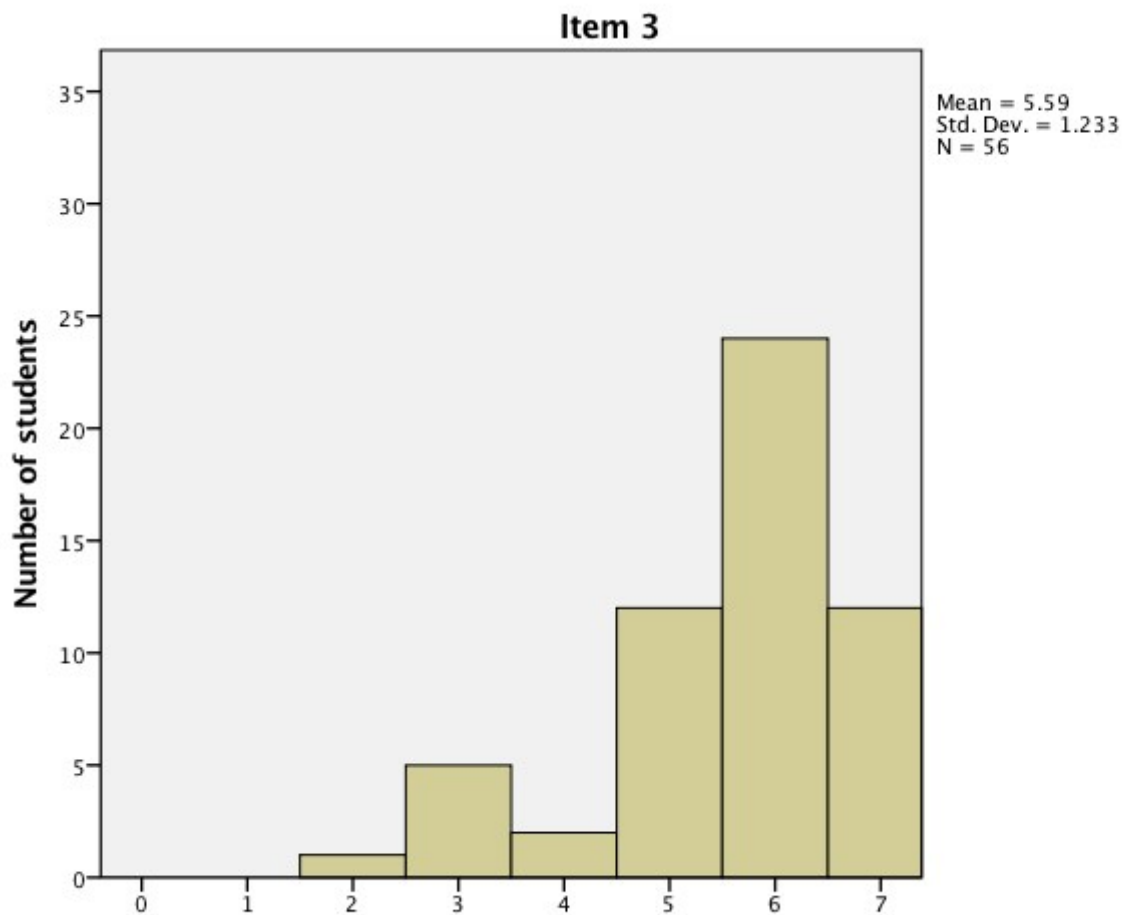


Figure 5.2. 3: Item 3: The dentist provided a good explanation of the following to the patient: 'The treatment for his or her medical problem'.

The students' mean score for this item is ($M=5.59$, $SD=1.23$). This is a high score and, as can be seen from the graph, a large number of students rated it 6, and an identical number of students gave it a score of either 5 or 7. The researchers gave this item a 3 with no variance between the three of them, suggesting there was a difference in opinion between the students and the researchers on how well the dentist performed in relation to this particular item; this held true when calculating the p value, which showed there is a significant difference, [$t(55)=15.72$, $p<.001$] for this item.

The next graph shows the distribution of the scores for the fourth item on the scale, which is grouped under the information-giving cluster.

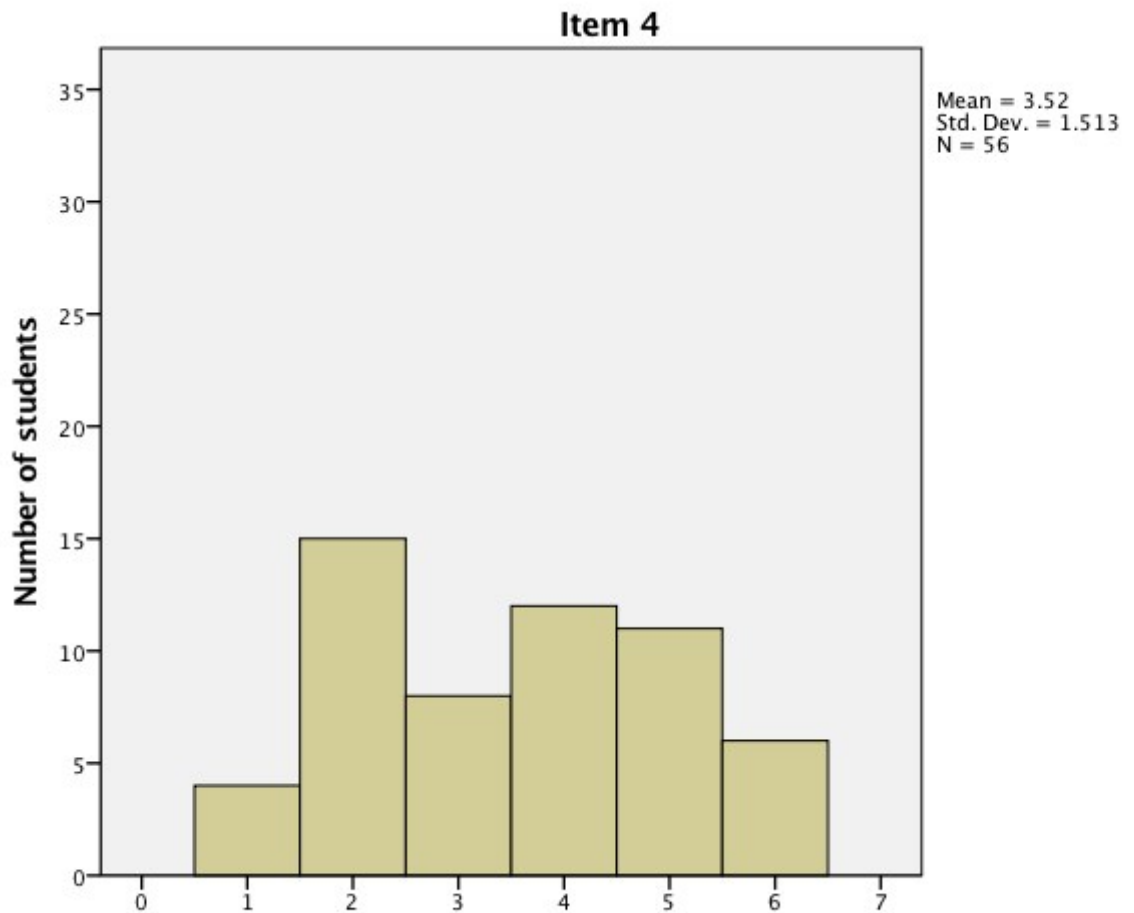


Figure 5.2. 4: Item 4: The dentist provided a good explanation of the following to the patient: 'The advantages and disadvantages of treatment options'.

As can be seen from the graph, this item shows variation in the scoring among the students themselves; its average score was 3.52. There is no variation among the researcher (SD=0), who scored it low (M=2). None of the students scored it 7, which is the highest score, and a few gave it 2, the same score as the researchers. The t-test showed there was a significant difference between students' and researchers' scores, [$t(55)=7.51, p<.001$].

The next graph shows the distribution of the students' scores for the fifth item on the scale, which has been classified under the information-giving cluster

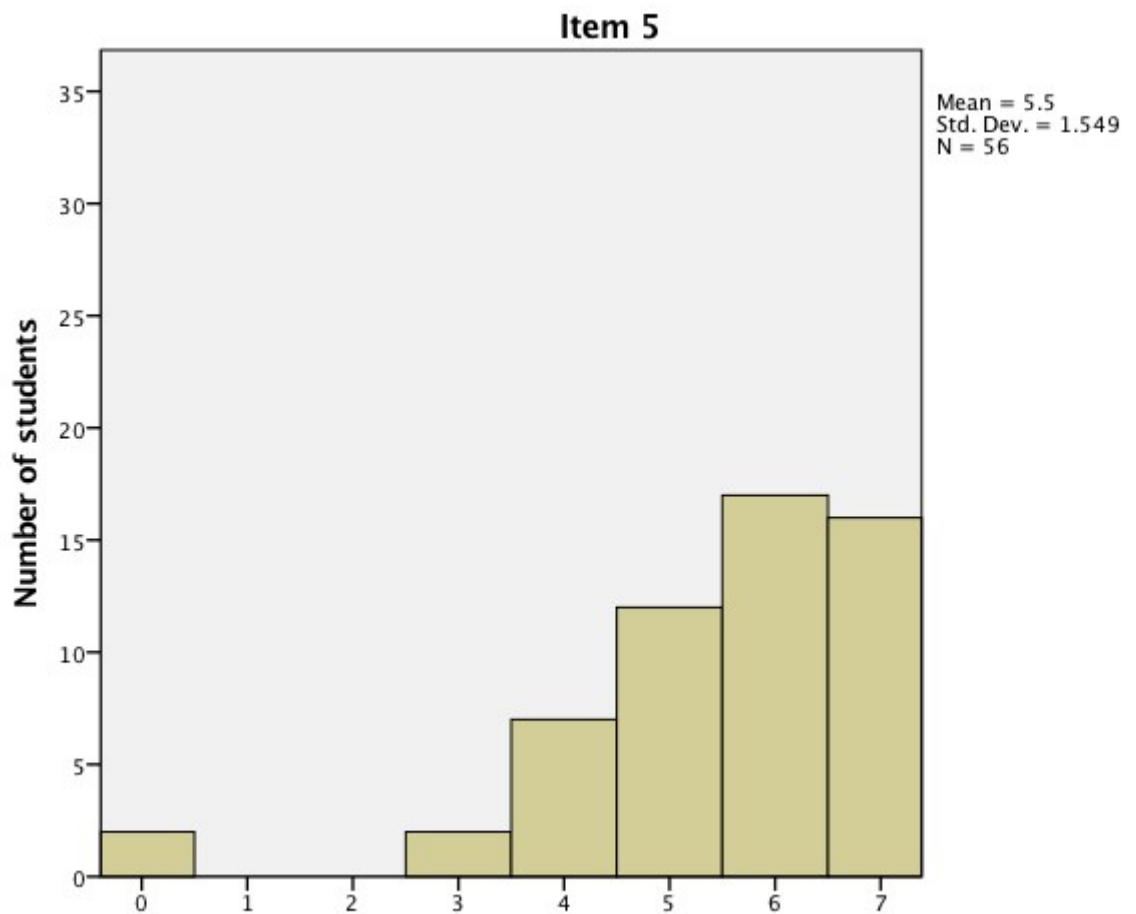


Figure 5.2. 5: Item 5: The dentist provided a good explanation of the following to the patient: 'The purpose of any tests that were needed'.

This item received ($M=5.5$, $SD=1.55$) from students and ($M=3.67$, $SD=1.15$) as a mean score from researchers. Students generally scored this item towards the higher end, meaning they thought the dentist did well in explaining 'the purpose of any tests that were needed'. The two senior researchers scored it 3, while the junior researcher scored it 5. The difference between the students and researchers is significant for this item, [$t(55)=8.84$, $p<.001$].

This graph shows how students scored the sixth item on the scale.

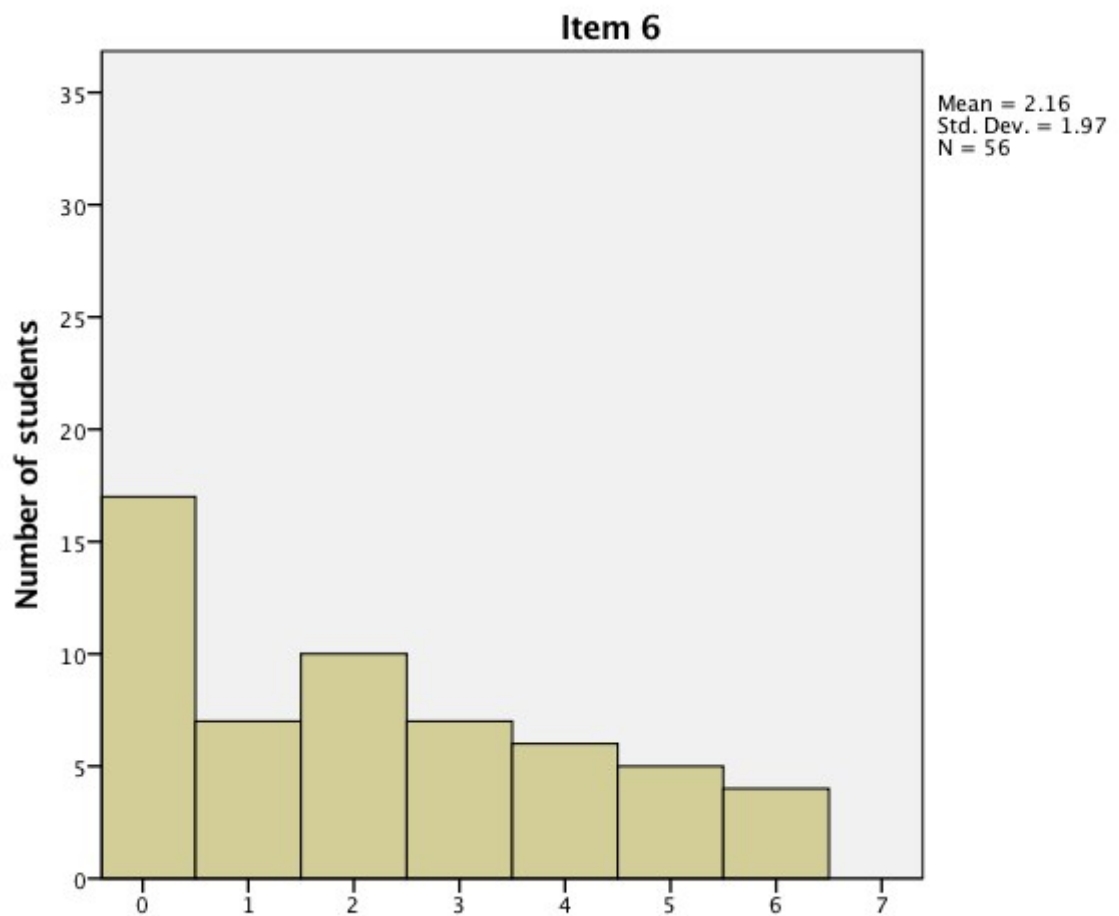


Figure 5.2. 6: Item 6: The dentist provided a good explanation of the following to the patient: 'How prescribed medications will help his or her problem'.

There was a wide variation in students' answers to this question ($M=2.16$, $SD=1.97$); the consultation clip did not include any talk about prescribed medications and that might be the reason for this variation. As can be seen, 0, which is the equivalent score for N/A, was selected by a considerable number of students, thus giving it scores towards the lower end, and very few gave it 5. The researchers scored it as N/A. The difference between the students' mean and the researchers' mean is significant for this item, [$t(55)=8.21$, $p<.001$].

The following graph shows the scoring of the seventh item on the scale, which can be classified under the information-giving cluster.

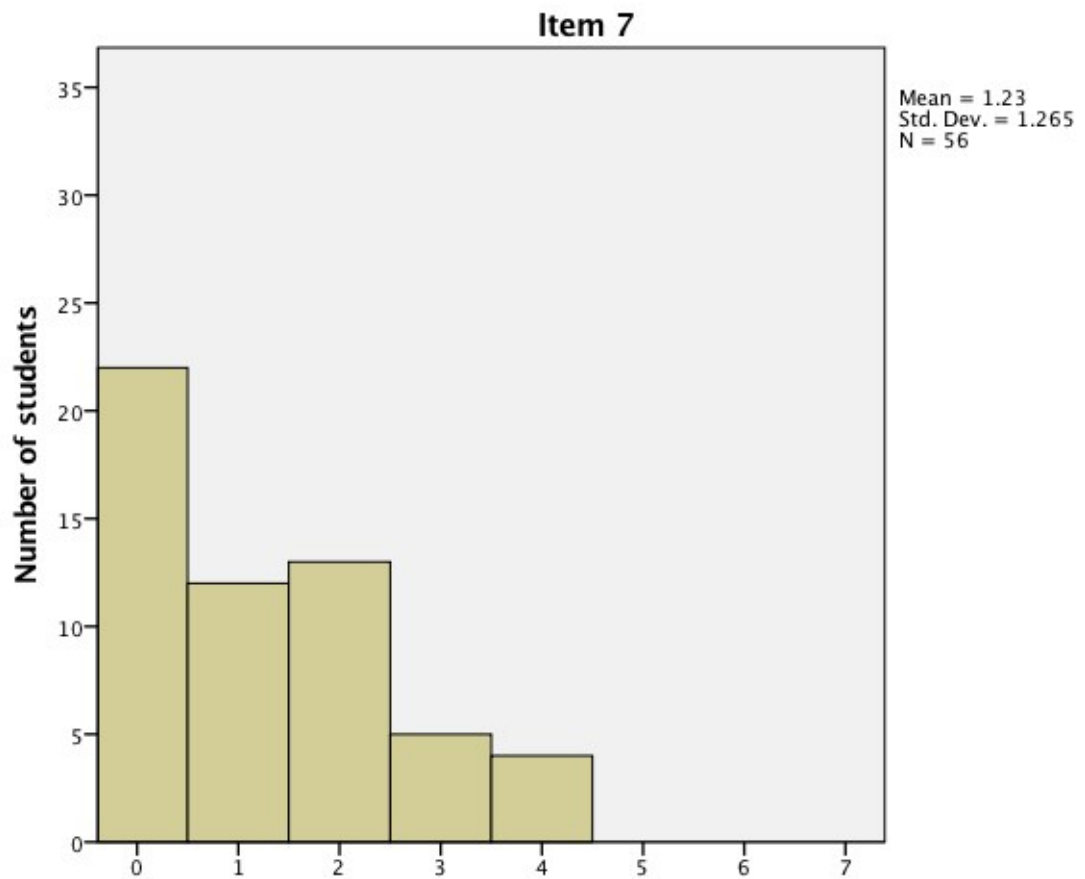


Figure 5.2. 7: Item 7: The dentist provided a good explanation of the following to the patient: 'How to take prescribed medication'.

This item is similar to the previous one, in that the issue of prescribed medication was not discussed in this particular consultation. More students seem to have given it an N/A than they gave the previous item, and no students gave it a score higher than 4, resulting in 1.23 as the mean (SD=1.27). Researchers rated this item as N/A (SD=0). The p value for the difference of opinions between researchers and students is [$t(55)=7.29, p<.001$].

The next graph shows the distribution of the students' scores for the eighth item in the MCCS.

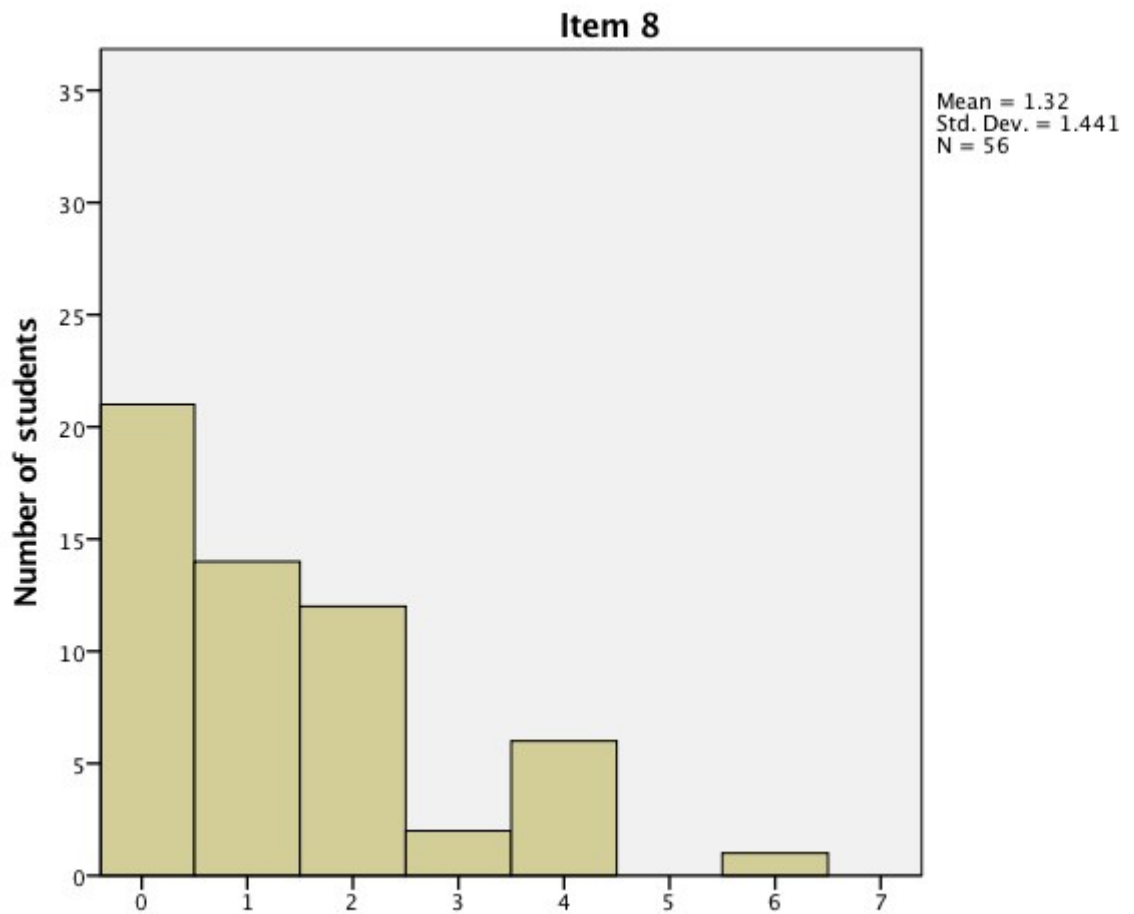


Figure 5.2. 8: Item 8: The dentist provided a good explanation of the following to the patient: 'The possible side effects of the medication'.

As with the previous two items, this one was not discussed and, therefore, most of the students either scored it N/A or gave it a low score ($M=1.32$, $SD=1.44$). Researchers also scored it N/A ($SD=0$). The difference between the two means is still significant for this item though [$t(55)=6.86$, $p<.001$].

The following graph shows how students scored the last item in the information-giving cluster.

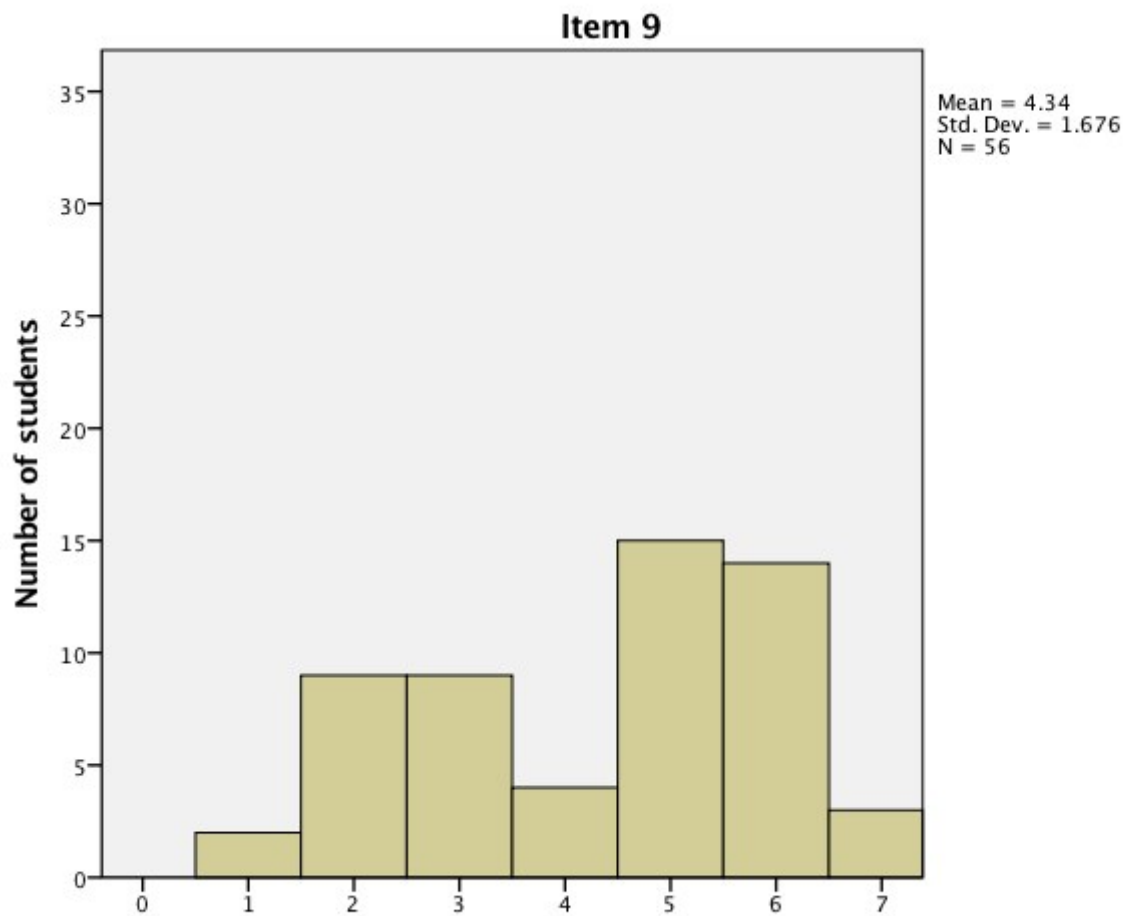


Figure 5.2. 9: Item 9: The dentist provided a good explanation of the following to the patient: 'The long-term consequences of his or her medical problem'.

This item showed some variation: students seemed divided, with some giving this item a low score, either 2 or 3, while others gave it 5 or 6 and a few gave it 7 and 1. The students' mean for this item is 4.34 (SD=1.68) and the researcher scored it (M=3, SD=1.73); the two senior researchers gave it 2 while the junior researcher gave it 5. The difference between the students' mean and the researchers' mean is significant for this item, [$t(55)=5.98$, $p<.001$].

The next graph shows the students' scores for item 10.

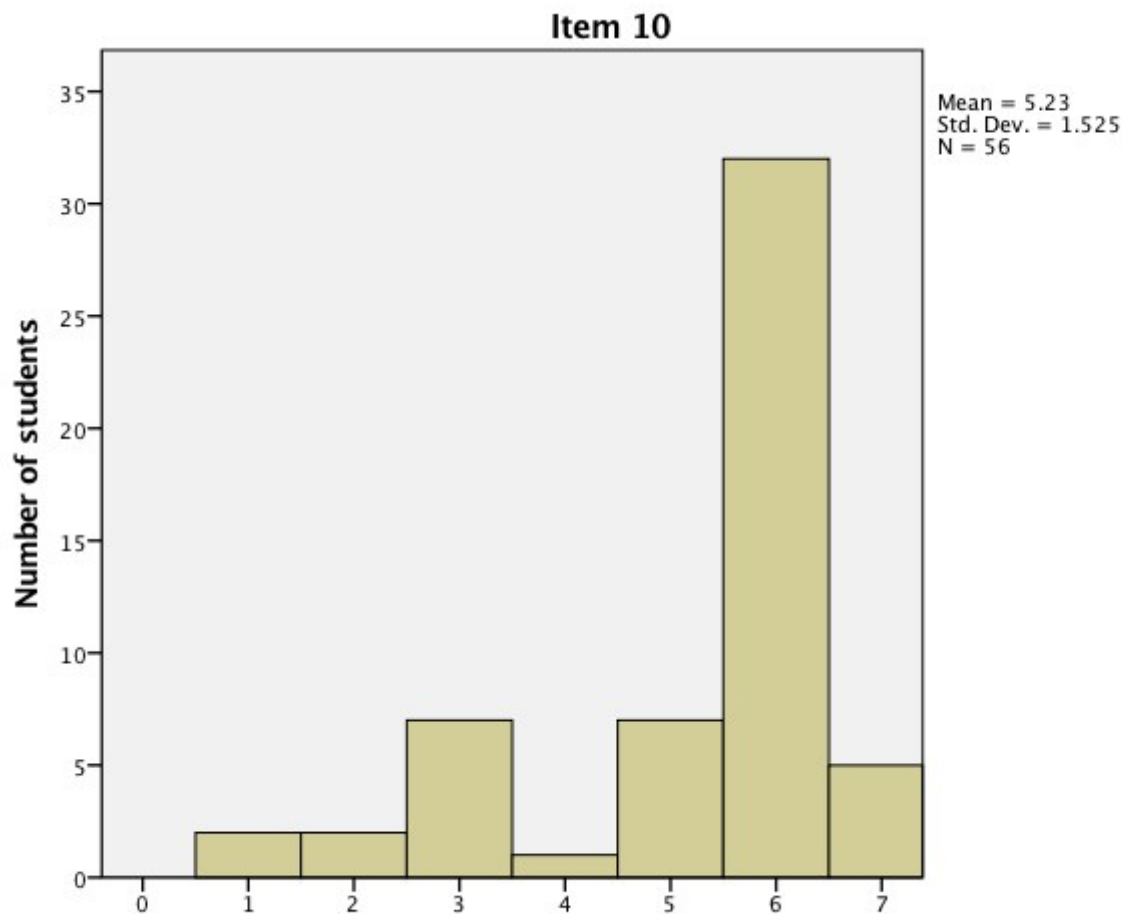


Figure 5.2. 10: Item 10: The dentist did a good job of: 'Reviewing, or repeating, important information for the patient'.

Item 10 has a ($M=5.23$, $SD=1.53$) from students, with the majority of them giving it a 6, which is the equivalent to 'agree' but, interestingly, a number of students gave it 3, which is similar to the mean score given by the researchers ($M=3.3$, $SD=1.53$). Nonetheless, the difference between the students' scores and researchers' scores is significant for this item, [$t(55)=9.48$, $p<.001$].

The following graph shows the scores for the 11th item in the MCCS, which has been classed under the information-verifying cluster.

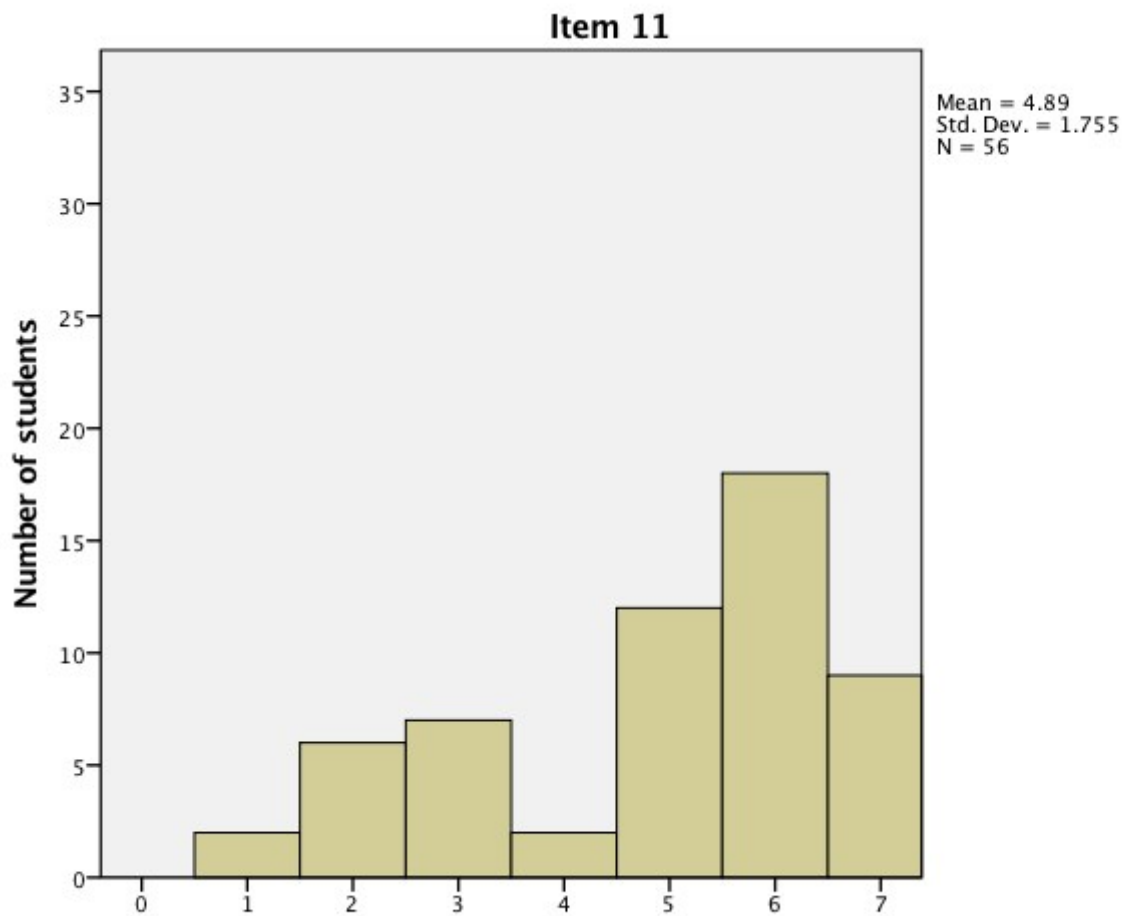


Figure 5.2. 11: Item 11: The dentist did a good job of: 'Making sure the patient understood his explanations'.

This item was given a mean score of 4.89 (SD=1.76) by students and (M=3, SD=0) by the researchers. Even though most of the students gave it a high score, some of them scored it low, at 2 and 3. The student-researcher difference is significant for this item, [$t(55)=8.07$, $p<.001$].

This graph shows students' scores for the 12th item in the MCCS.

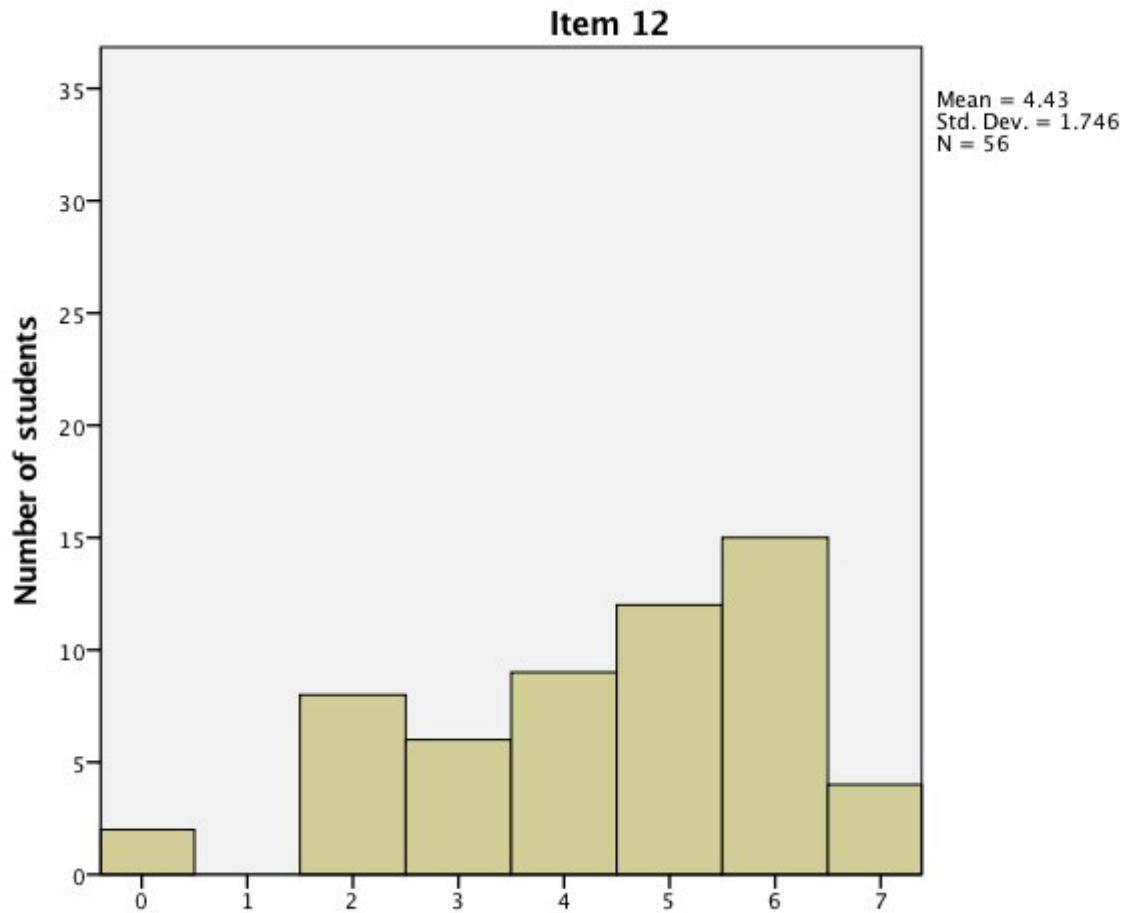


Figure 5.2. 12: Item 12: The dentist did a good job of: 'Making sure the patient understood his directions'.

This item seems to be scored differently by different students; some of them gave it a low or 'not sure' score while others gave it a high score. The mean for this item is 4.43 (SD=1.75) as rated by students, and 2.67 (SD=.58) by researchers, showing a clear difference between the two, [$t(55)=7.54$, $p<.001$].

The next graph shows students' scores for the 13th item in the MCCS; this item is classified under the information-verifying cluster

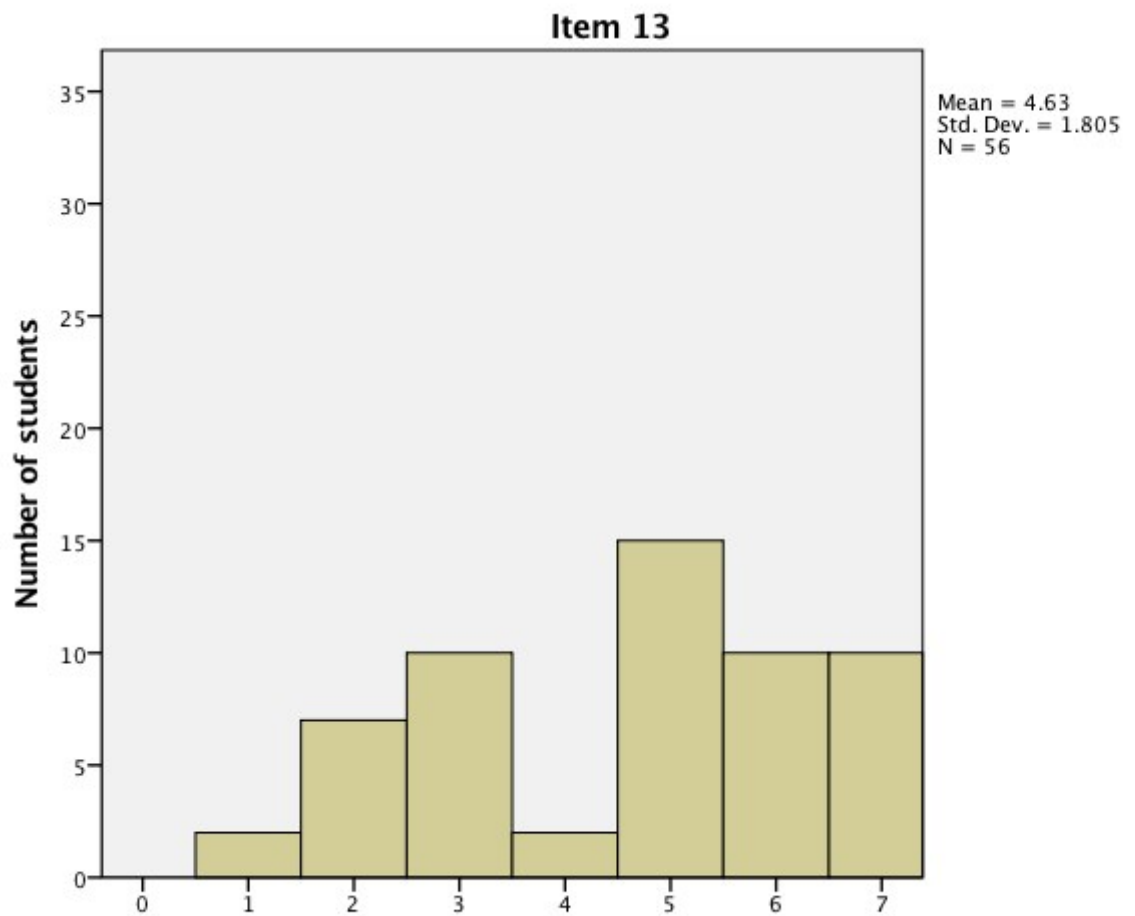


Figure 5.2. 13: Item 13: The dentist did a good job of: 'Checking his understanding of information the patient provided'.

This item has an average score of 4.63 (SD=1.81) from students and (M=3.67, SD=1.15) from researchers, with a difference of nearly one point between the two scores. Most students scored it at the higher end, but a considerable number scored it at the lower end, below 4. The difference between the students' and researchers means' was significant for this item, [$t(55)=3.96, p<.001$].

The following graph shows the scores for the 14th item on the scale and the first item in the information-seeking cluster.

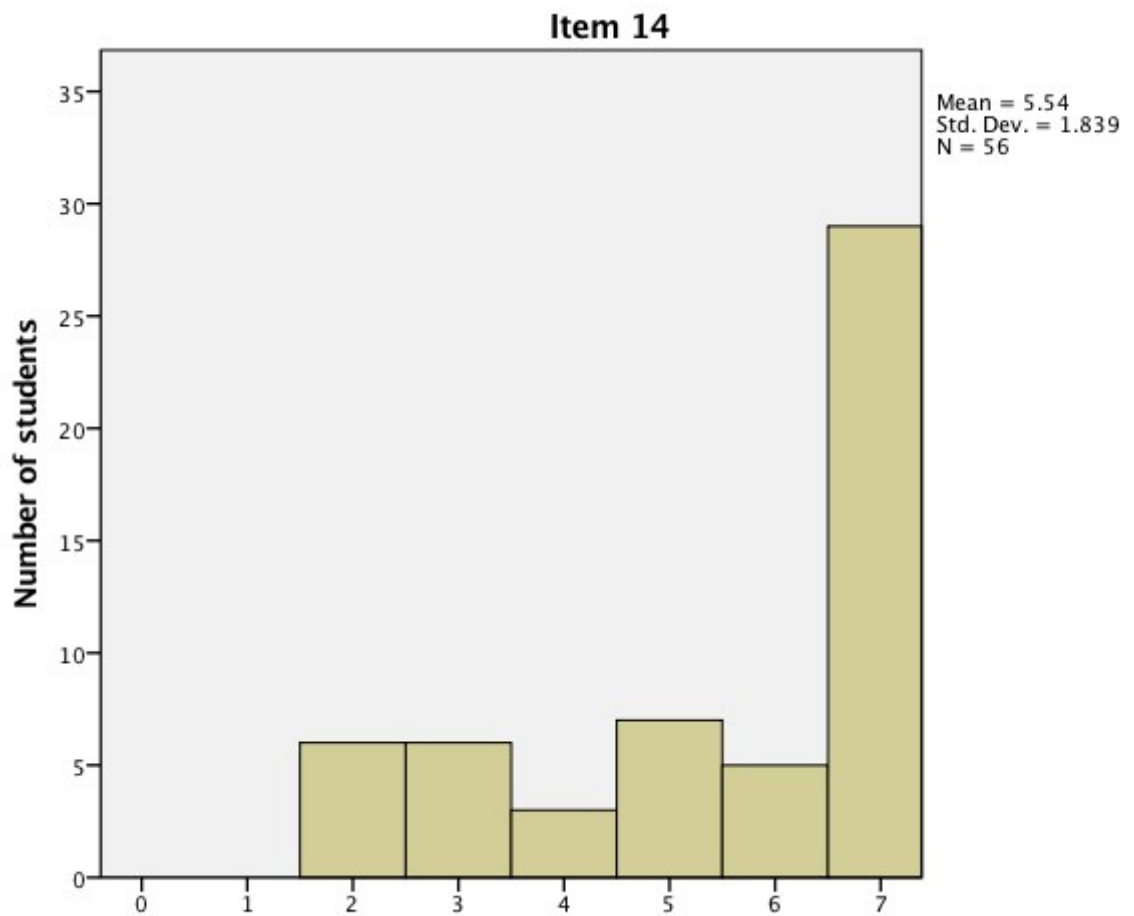


Figure 5.2. 14: Item 14: The dentist did a good job of: 'Encouraging the patient to ask questions'.

This item was given a favourable score by students in general, with a considerable number of them giving it the highest score, namely 7, while a few gave it a low score of 2 or 3. The mean of this item as scored by students is 5.5 (SD=1.84) and, as scored by researchers, (M=3.67, SD=1.53), showing a difference between the two scores, [$t(55)=7.59$, $p<.001$].

The following graph shows students' scores for the 15th item on the scale.

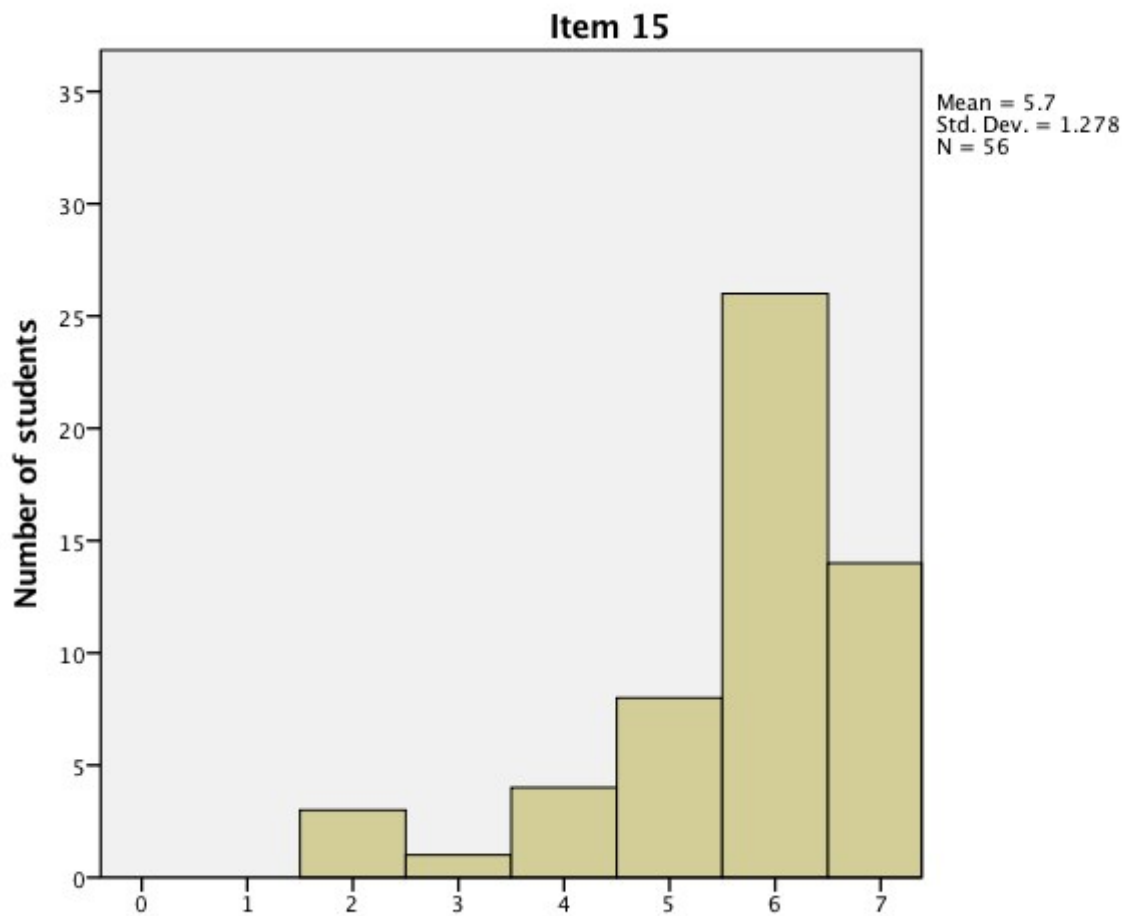


Figure 5.2. 15: Item 15: The dentist did a good job of: 'Asking the patient the right questions'.

This item got a high score in general, the students' average score for this item being ($M=5.696$, $SD=1.28$) and the researchers' average score being ($M=5.3$, $SD=.58$). With a few exceptions, the students rated this item towards the higher end of the scale, with the score of 6 being the most commonly selected. The P value for this item was $t(55)=2.32$, $p=.024$, indicating a non-significant difference between the researchers and students.

The following graph shows students' scores for the 16th item on the scale.

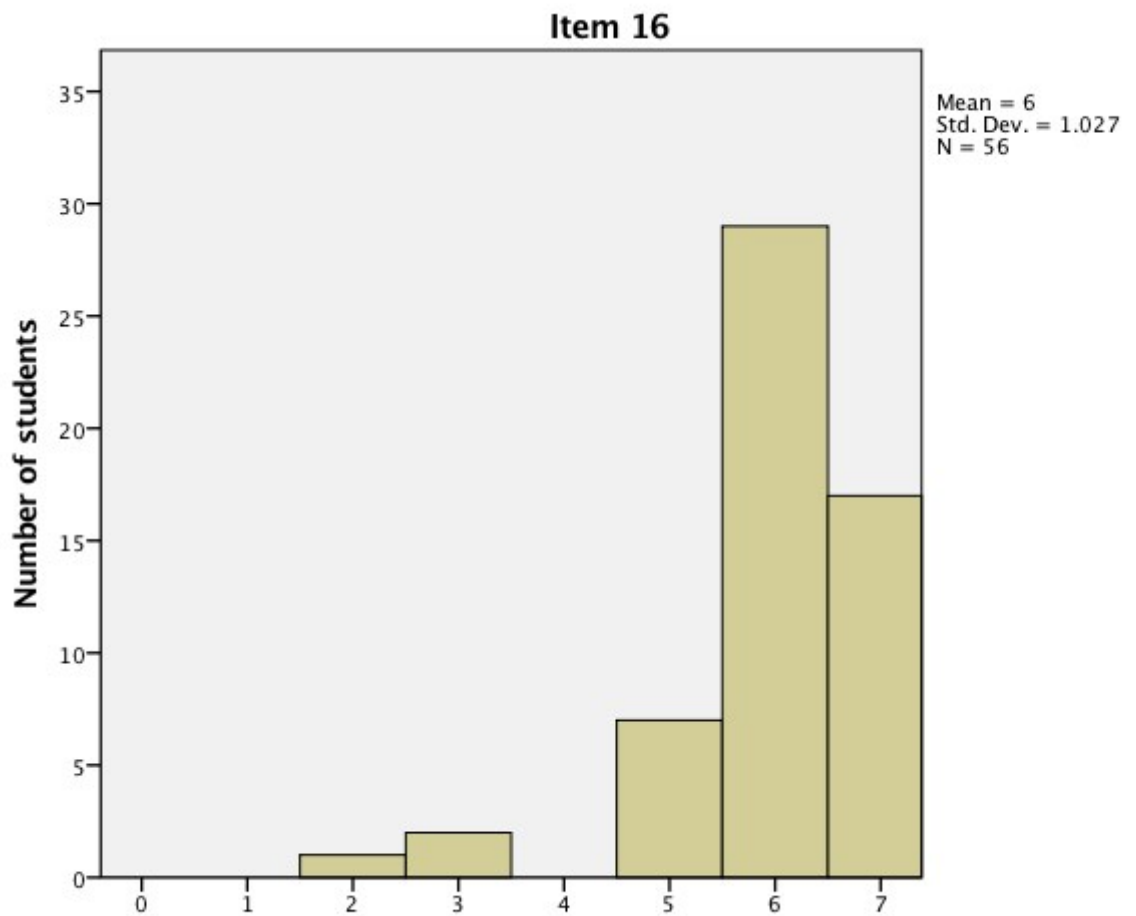


Figure 5.2. 16: Item 16: The dentist did a good job of: 'Asking questions in a clear, understandable manner'.

This item has the highest mean score; researchers gave it a high score as well ($M=5.3$, $SD=.58$). Most of the students scored it 6, which is its mean score, and a very few students gave it 2 or 3 ($M=6$, $SD=1.03$). The difference between the students and the researchers was significant for this item, [$t(55)=5.10$, $p<.001$].

The following graph shows the scores for the 17th item in the MCCS, which is the last item in the information-seeking cluster

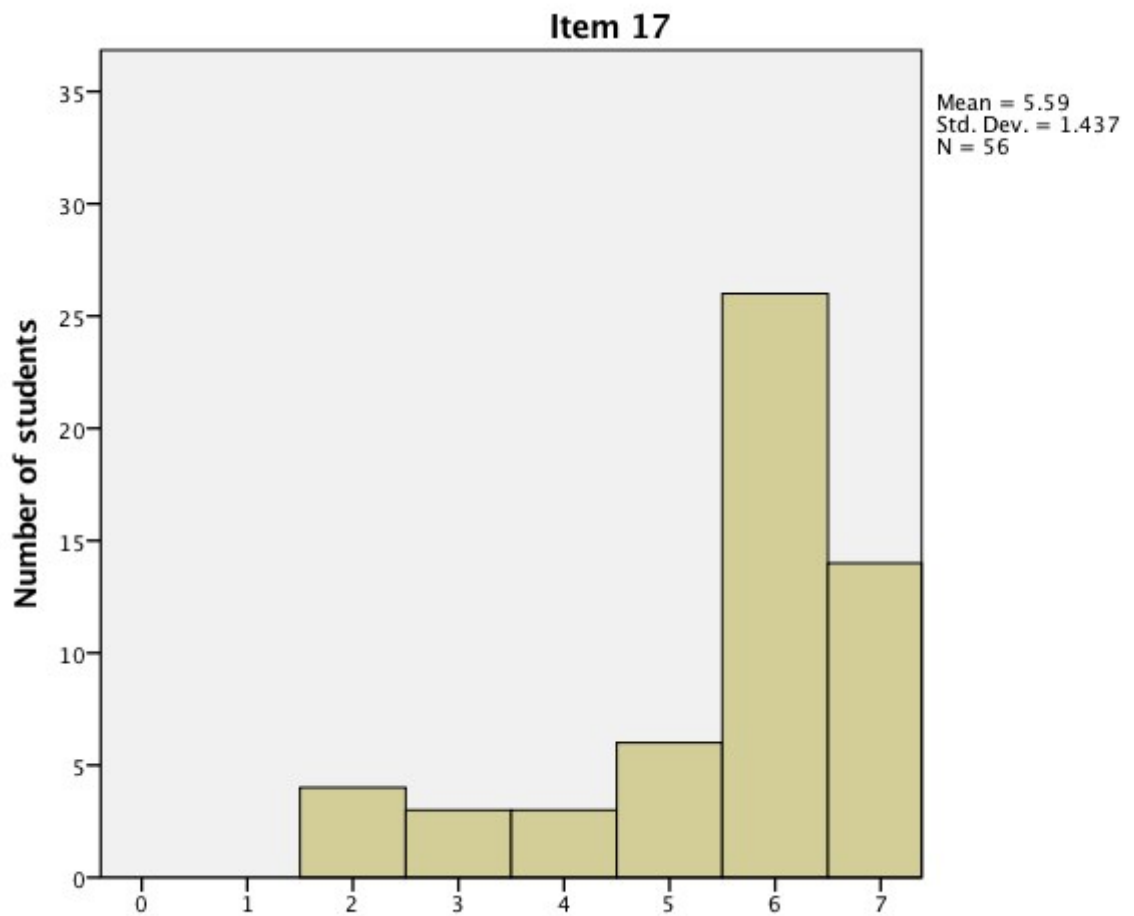


Figure 5.2. 17: Item 17: The dentist did a good job of: 'Using open-ended questions'.

This item has a mean score of 5.59 (SD=1.44) from students and (M=3.6, SD=1.15) from researchers, with the two senior researchers scoring it 3 and the junior researcher scoring it 5. The majority of the students scored it 6, with some of them giving it the perfect score of 7 and a very few giving it a low score of 2 or 3. There is a significant difference between the mean score of the researchers and that of the students for this item, [$t(55)=10.36$, $p<.001$].

The next graph shows students' scores for the 18th item on the scale. This item is the first item in the socioemotional communication cluster

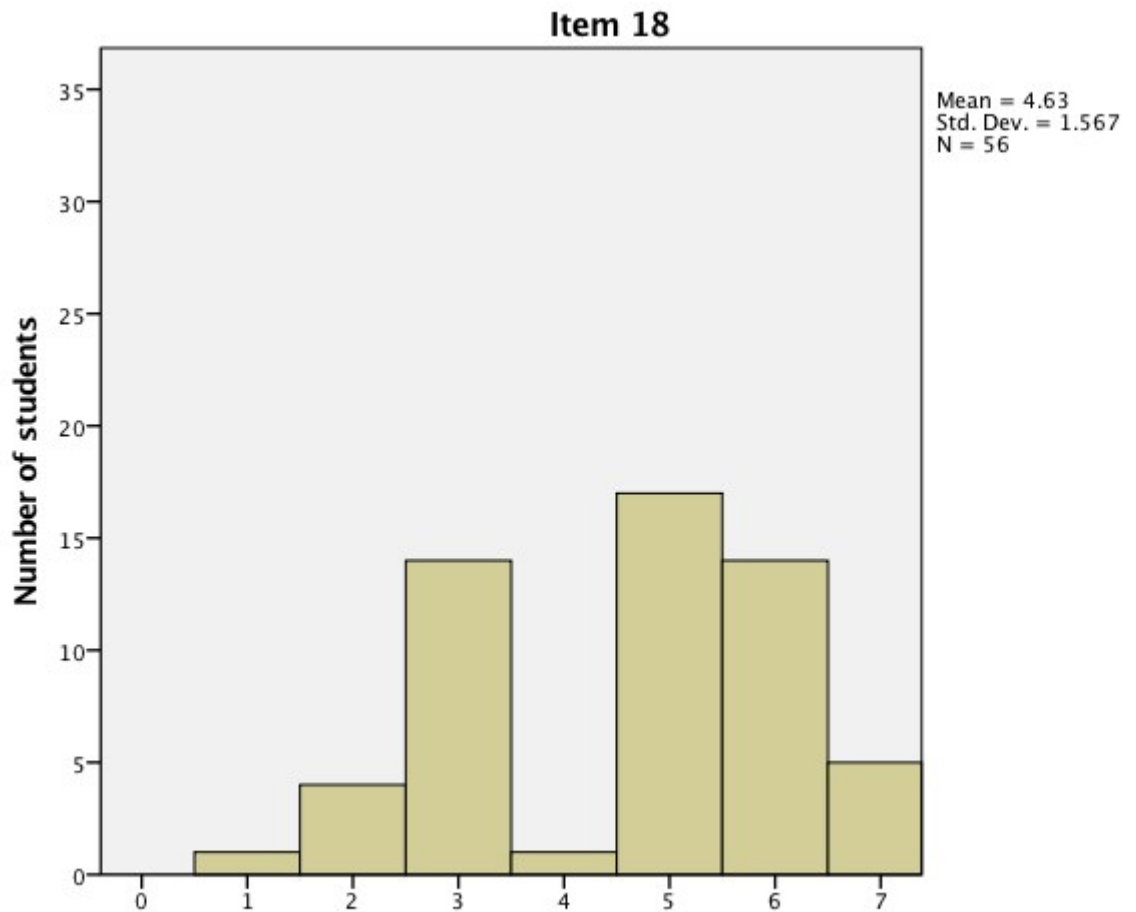


Figure 5.2. 18: : Item 18: The dentist did a good job of: 'Using language the patient could understand'.

This item has a mean score of 4.63 (SD=1.57) from students, with most of them giving it a score higher than 4, as can be seen from the graph. Nonetheless, a considerable number of students gave it a score lower than 4. The researchers gave this item a 2 as a mean score (SD=1), which was significantly different from the students' score; [$t(55)=12.53$, $p<.001$].

The following graph presents the scores of the 19th item in the MCCS, the second item in the socioemotional communication cluster

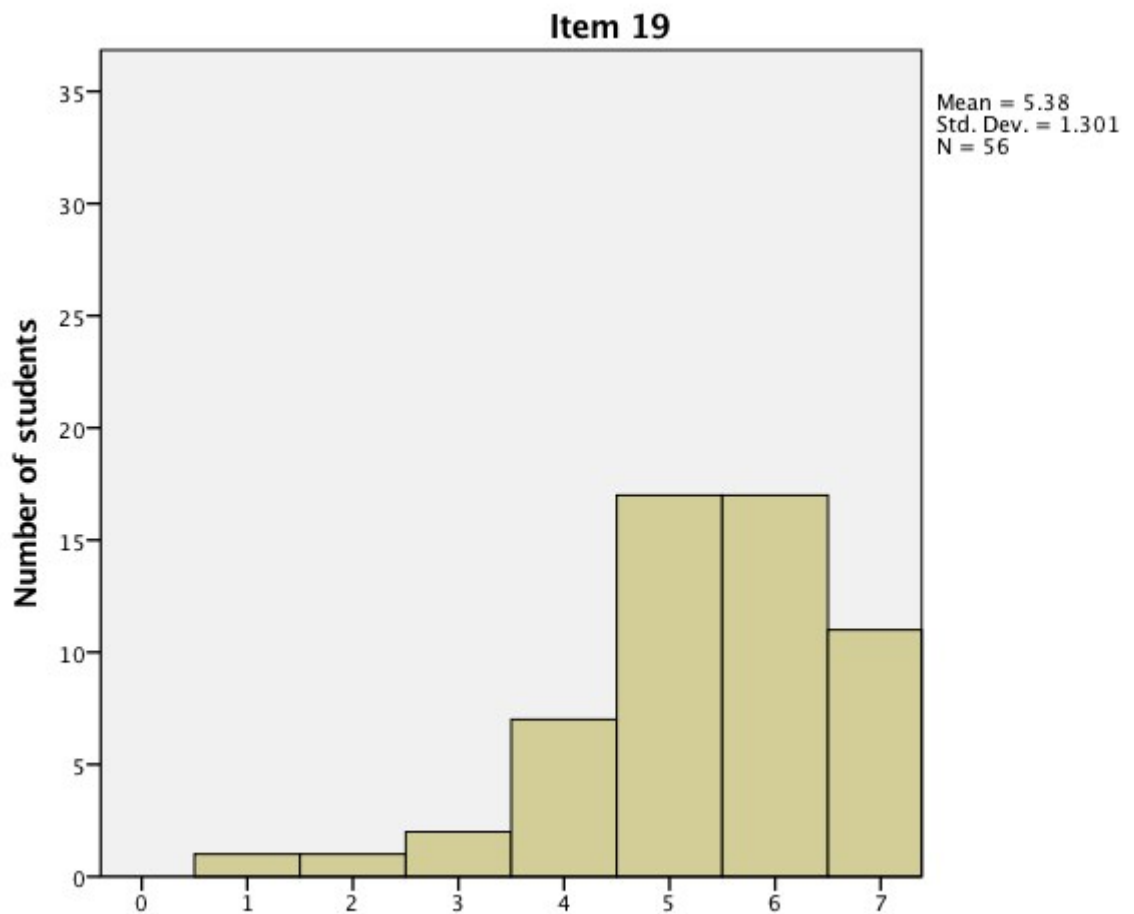


Figure 5.2. 19: Item 19: The dentist did a good job of: 'Being warm and friendly'.

This item, concerning the friendliness of the dentist, was scored ($M=5.38$, $SD=1.3$) by students and ($M=3.3$, $SD=1.53$) by researchers. Most of the students, as can be seen, scored it 5 or 6, a few 4 or lower and some, 7. There was a considerable difference between the students' score and the researchers' score regarding this item; [$t(55)=11.93$, $p<.001$].

The next graph shows students' scores for the 20th item on the scale.

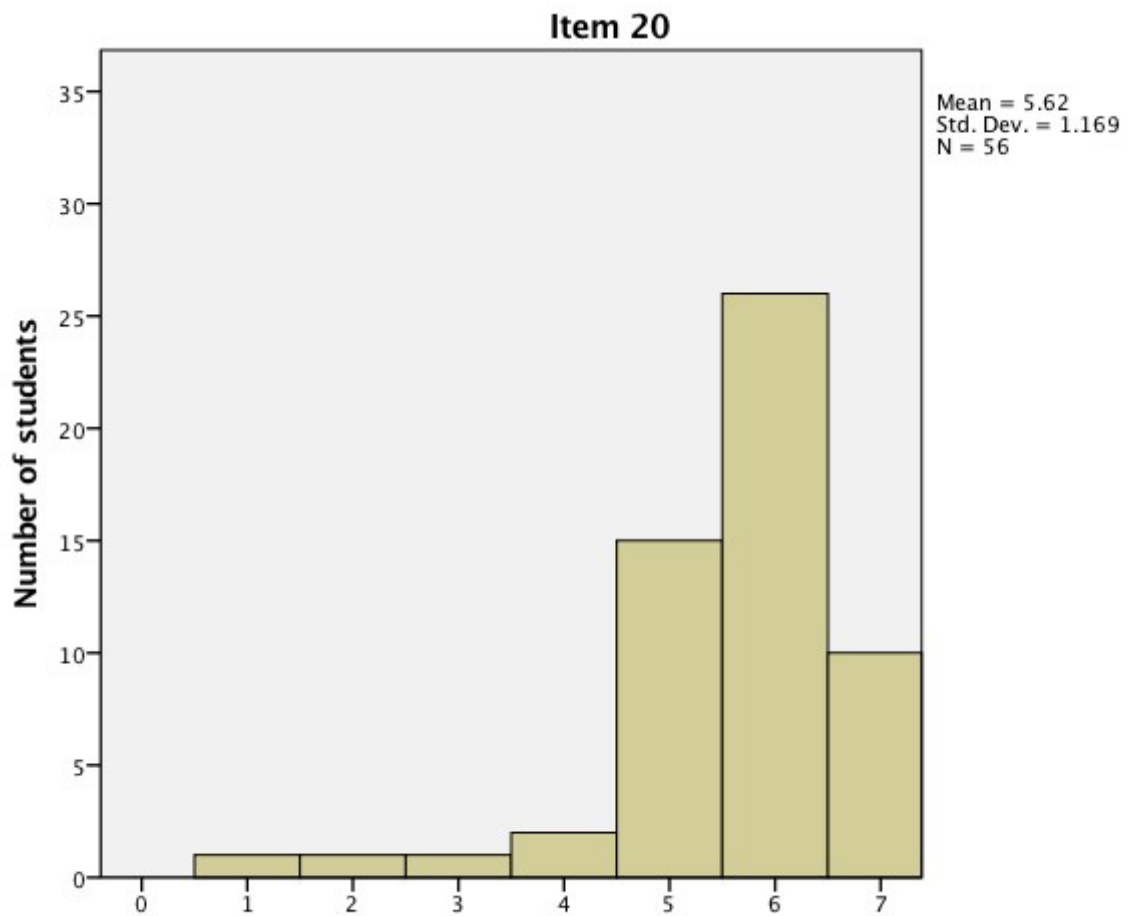


Figure 5.2. 20: Item 20: The dentist did a good job of: 'Contributing to a trusting relationship'.

The students gave this item ($M=5.62$, $SD=1.17$), with most of them scoring it 6 and, to a lower degree, 5. The researchers gave it a score of ($M=4.67$, $SD=.58$). With the exception of a few students, most seemed to think the dentist did well in 'contributing to a trusting relationship'. The difference between the students' and the researchers' means was significant for this item; [$t(55)=6.12$, $p<.001$].

The following graph shows the students' scores for the 21st item on the scale.

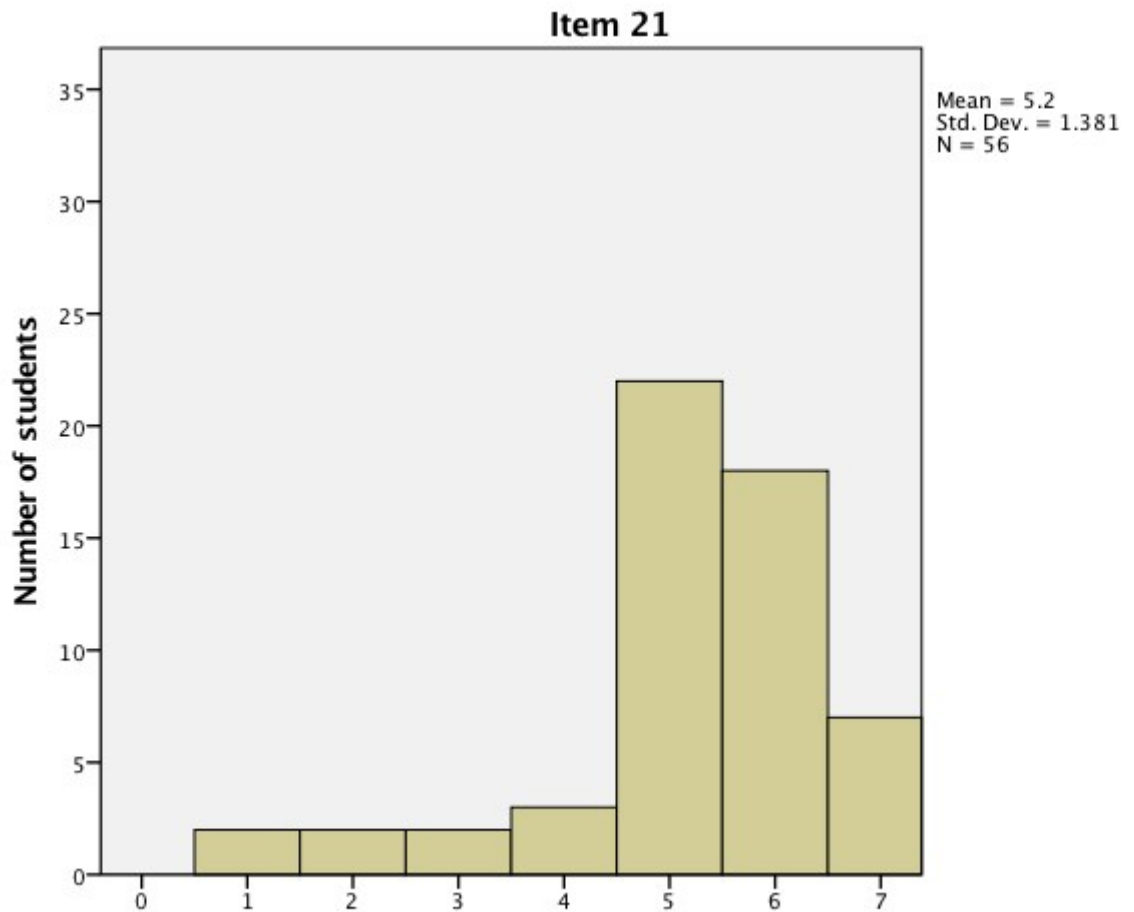


Figure 5.2. 21: Item 21: The dentist did a good job of: 'Showing the patient he cared about him or her'.

The students scored this item ($M=5.2$, $SD=1.38$), with most of them giving it a score of 5 or 6 although there were a few exceptions. Researchers gave this item ($M=3$, $SD=1.73$). There is a difference between these two scores and how they both rate the dentist doing a good job of 'showing the patient he cared about him or her'; [$t(55)=11.91$, $p<.001$].

This graph shows the scores for the 22nd item in the MCCS, which has been classified under the socioemotional communication cluster

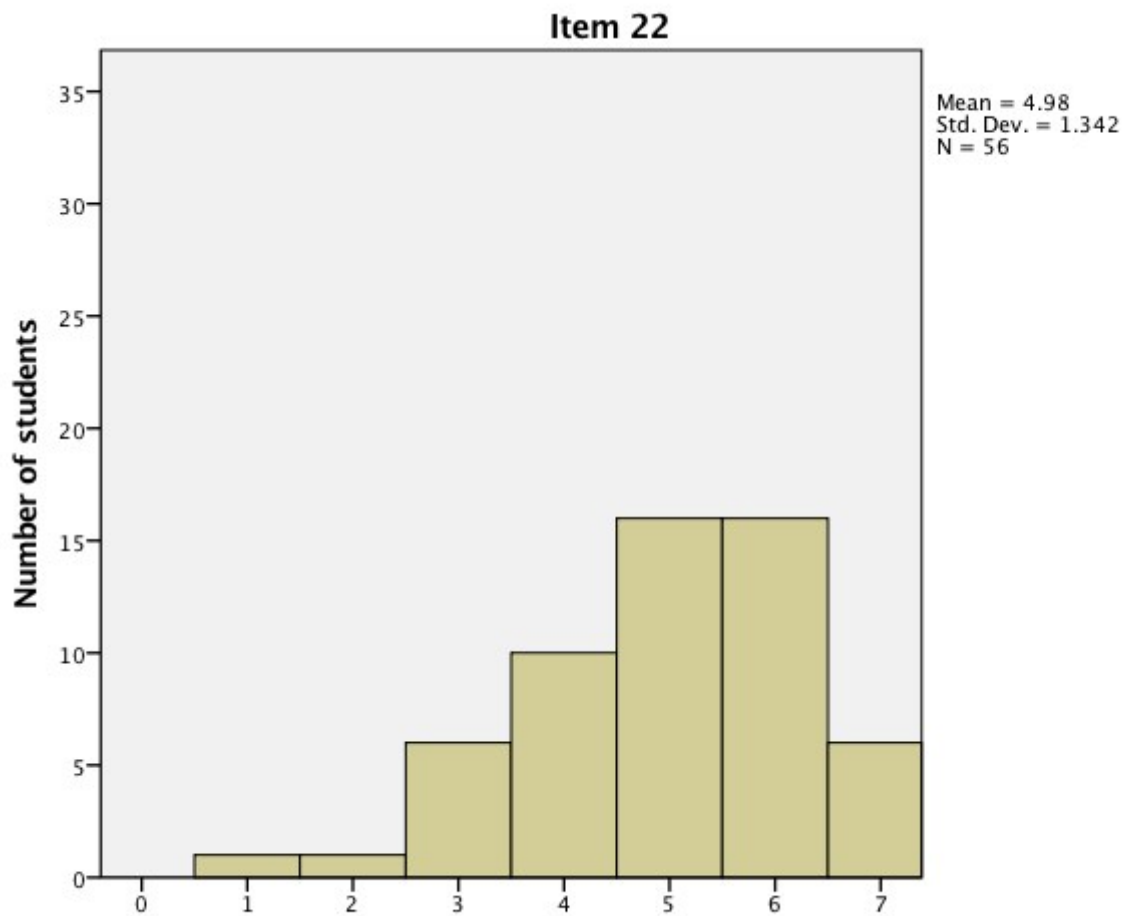


Figure 5.2. 22: : Item 22: The dentist did a good job of: 'Making the patient feel relaxed or comfortable'.

The students, in general, gave this item a high score, with a number of students giving it 4 ('not sure') and a few rating it 3. The mean score from the students for this item is 4.98 (SD=1.34) while that from the researchers is 2.3 (SD=.58), a significant difference. It should be noted that, as stated earlier, not all students thought the dentist did a good job; some of them were 'not sure' how to rate his performance in relation to this item. The t-test showed that there is a significant difference between the two scores; [$t(55)=14.96, p<.001$].

The next graph presents the students' scores for the 23rd item in the scale; this item has been classified under the socioemotional communication cluster

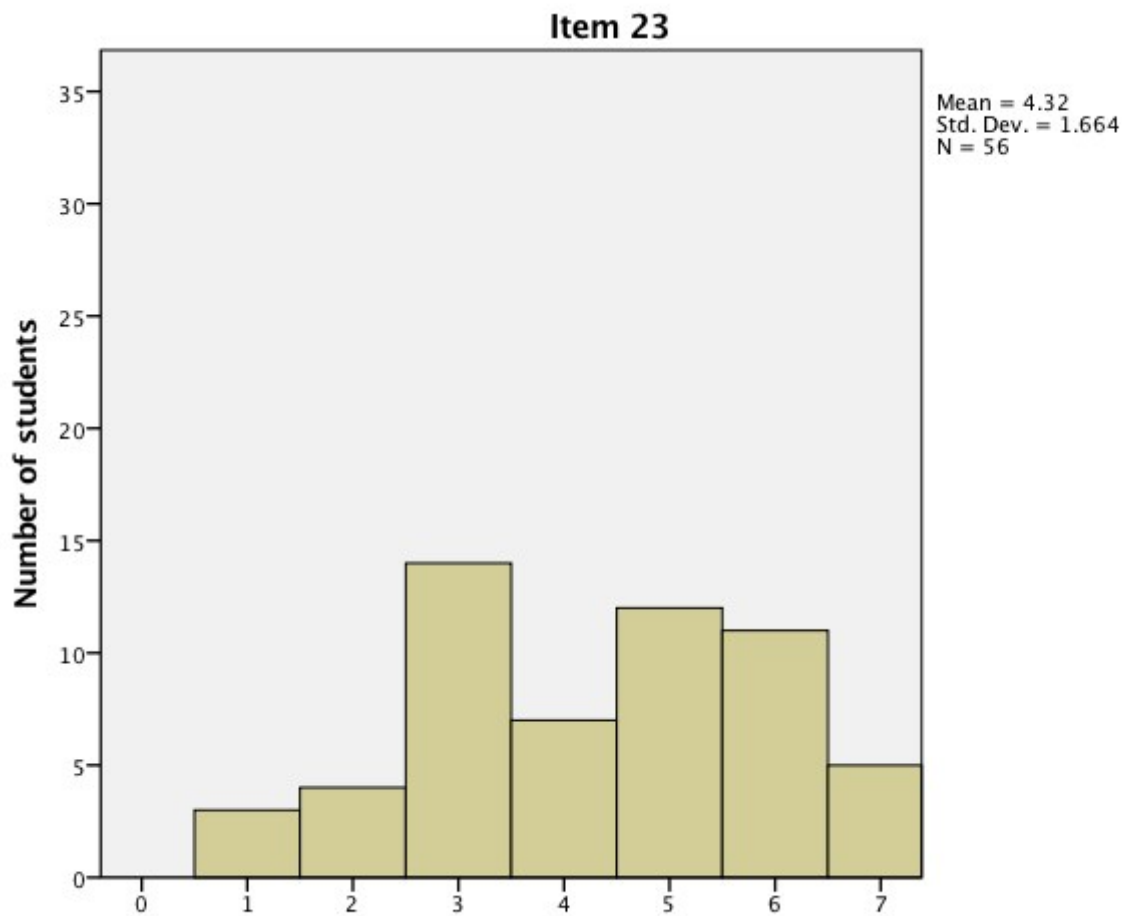


Figure 5.2. 23: Item 23: The dentist did a good job of: 'Showing compassion'.

There is some variation in the scoring of this item by students. Three, which is 'slightly disagree', was the most selected score. The mean for this item is 4.32 (SD=1.66) from students, with a number of them giving this item a low score and others giving it a high score. The researchers' mean score is 2.67 (SD=.58), which is towards the lower end of the scale. There was a significant difference in the scoring of this item; [$t(55)=7.43$, $p<.001$].

The following graph shows students' scores for the final item on the scale, which has been classified under the socioemotional communication cluster

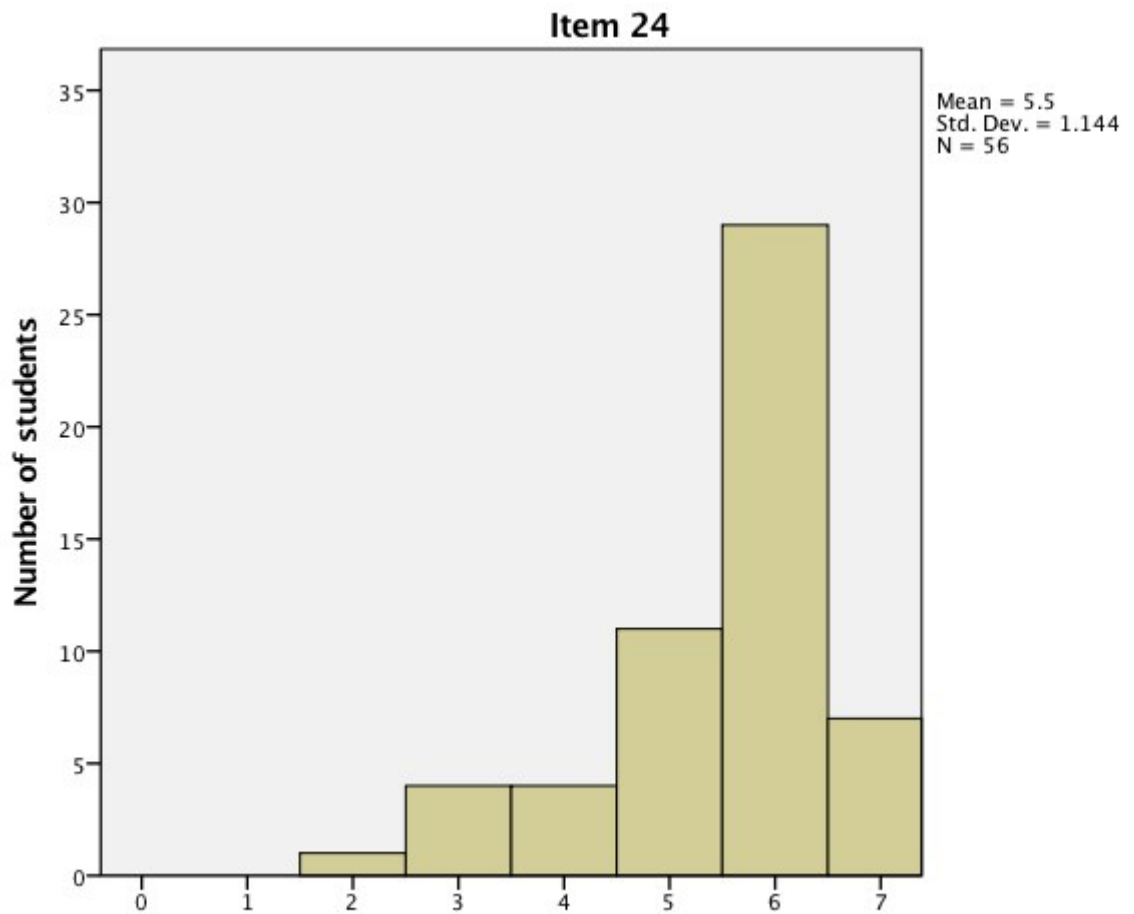


Figure 5.2. 24: Item 24: The dentist did a good job of: 'Being open and honest'.

The majority of the students scored this item 6 ($M=5.5$, $SD=1.14$) which is very similar to the researchers' mean of 5.3 ($SD=.58$). There were no significant differences between the two scores; [$t(55)=1.31$, $p=.196$].

In general, the students gave the dentist communication a high rating. The highest scoring item was the item '*Asking questions in a clear, understandable manner*', which received 6 as a mean. The lowest scored item was '*How to take prescribed medication*', which got 1.23 as an average score. For all the items in the scale, with the exception of one, the difference between the dental students' scores and the researchers' scores was significant.

In addition to calculating the mean for each item, the researcher calculated it for each cluster, these being the four clusters discussed at the beginning of this

study: 'information giving', 'information verifying', information seeking' and 'socioemotional communication'.

The following table displays the mean (SD) score for each of the main four clusters from researchers and students.

Table 5. 2: *Mean and SD for the four clusters*

Cluster	Students' Mean Score (and SD)	Researchers' Mean score (and SD)
Information giving (items 1 to 9)	3.91 (.81)	2.19 (.51)
Information verifying (items 10 to 13)	4.79 (1.44)	3.16 (.72)
Information seeking (items 14 to 17)	5.71 (.88)	4.45 (.90)
Socioemotional communication (items 18 to 24)	5.09 (1.07)	3.32 (.82)

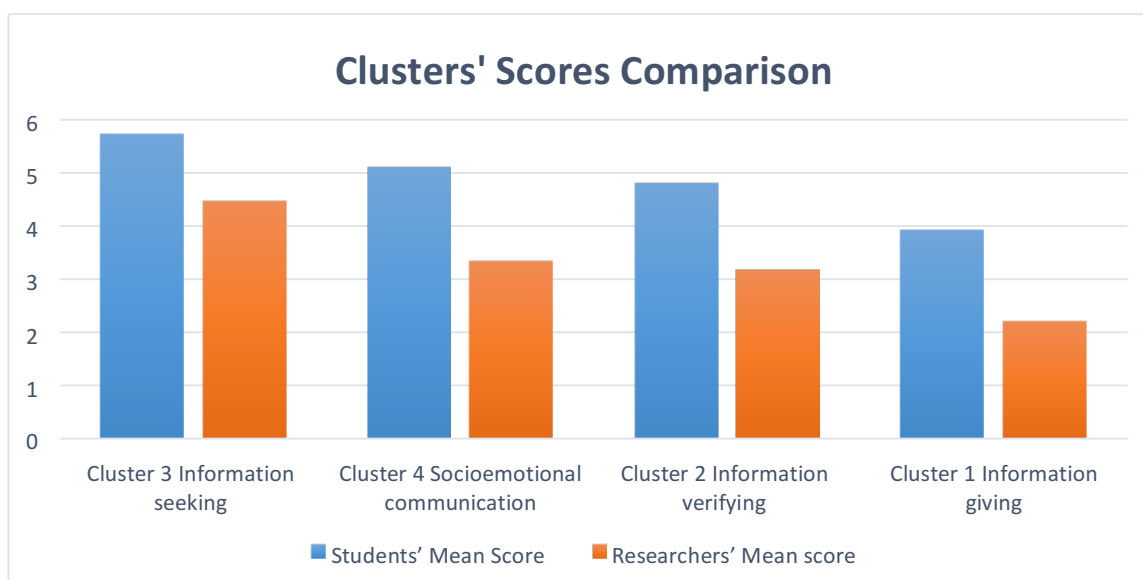


Figure 5 2: Clusters' means for the researchers and students

As is apparent from this table and the figure, students gave the highest rating (5.71) to the third cluster, *information seeking*. These items focus on the way the dentist encourages the patient to ask questions and the way the dentist asks questions to the patient. The lowest score was given to the first cluster, *information giving*, which covers how the dentist communicates the diagnosis, treatment and any necessary tests to the patient. This low rating in this case could be attributed to the low rating given to items concerning prescribed medications, as these were not relevant. Although there is a significant difference between students' scores and researchers' scores, they are similar in that the rankings are the same when ranking the clusters from that with the highest score to that with the lowest, namely *information seeking*, *socioemotional communication*, *information verifying* and, finally, *information giving* with the lowest score. This could imply that even though students tended to assign a higher score and were more generous in their scoring, they seemed able to make a certain level of differentiation between areas in which the dentist performed well and areas in which he or she did not.

5.5 Discussion

This section starts with a discussion of the differences and similarities between students' scoring and the 'gold standard' panel score for the individual items. Following this is a discussion of the differences and similarities between students'

scores and the researchers' score in relation to the four clusters. Moreover, a comparison with the literature is made to identify how the present results match, contribute to and differ from other studies.

Before discussing the results in detail, it should be noted that one cluster, the *information seeking* cluster, had poor reliability, with a Cronbach's alpha = .454. Deleting the items under this cluster was initially considered, but it was later decided that they would remain. In view of this, the results should be interpreted with caution. This low reliability in this sample was in contrast with the good reliability of all four clusters in the validation of the MCCS by the researchers who developed it (Cegala et al., 1998). This could possibly be a result of the difference in population and setting, which reinforces the hypothesis that measures developed for medicine might not be readily and uniformly applicable to a direct transfer into the dental setting (Lee et al., 2007).

First, regarding the individual items, dental students gave the dentist a significantly higher score than the researchers did across all but two MCCS items. Students seemed inclined towards giving the dentist a higher score than was merited based on his performance, according to the researchers' ratings. So, the students' scores give the impression that the clip depicted a dentist who was quite skilled at communication skills in general, with just a few areas that needed improvement. The data suggest that the researchers and students had rather different perceptions of the quality of the communication in the clip. The following section attempts to explain these differences in greater detail.

Although there is a significant difference between the scoring of students and that of the researchers, this gap was more obvious in certain items. Most of these items concerned how the dentist explained and communicated the condition and the proposed treatment to the patient. These differences could mean that dental students had some difficulty with differentiating between language that the patient could easily understand and comprehend and that which he or she might find confusing. This issue was made more obvious by the scoring of the item '*Using language the patient could understand*'. This could reveal why there is such variation between the students' scoring and that of the researchers. It is possible

that the students found it challenging to assess what type of language the 'patients' could understand, whereas as the researchers came from different specialties and were not dentists so they could possibly be more representative of the average patient, and therefore more likely to observe and assess the consultation from a patient perspective rather than a dentist perspective. In contrast, dental students – especially those who took part, i.e. students in their third, fourth or fifth year of study - were more likely to represent the dentist, and therefore might not feel the same way as a layperson would, as they are already familiar with the terms and language in the field of dentistry. As number of studies have indicated, to include the interviews reported in Chapter 4, one of the common barriers to communication between patient and dentist from both the patient and dentist perspectives was the use of technical terms when communicating (Raja et al., 2015, Horowitz and Kleinman, 2008). This issue could imply that dental students training in communication skills might need to focus more on teaching these particular aspects of communication (Bachmann et al., 2013).

To illustrate the point of how dental students seemed to score the consultation further, the item '*Making sure the patient understood the dentist's directions*' did not receive a high score from the students. There was some variation in the scoring from the students themselves, and the researchers scored it much lower. This demonstrates that despite not really agreeing that the dentist ensured the patient understood his directions, the students still awarded an average score that is on the higher end of the scoring spectrum. This trend was visible in the scoring of other items, and examination of these items reveals that most of them generally concern how the dentist explained the situation to the patient and how clear and understandable this explanation was. Students seemed to feel the level of explanation that was provided and the language that was used by the dentist in the clip were sufficient and acceptable, and that they could be easily understood by the patient. A number of studies recognise this issue and emphasise the importance of avoiding the use of technical language when communicating with the patient (Theaker et al., 2000, Graham and Brookey, 2008). In addition, further examination of the data indicates there is a difference not only in the scoring of the items categorised under '*information exchange*' but

also in the scoring of the items under the '*socioemotional talk*'. The significant differences found in the '*socioemotional talk*' cluster, with its focus on empathy and other similar items, could signify that dental students need to be taught these, which are often perceived as 'soft skills'. Some studies have started exploring the effectiveness of courses designed to help students improve in this area of communication (Hannah et al., 2004, Yoshida et al., 2002, Hottel and Hardigan, 2005). This was based on other studies that have reported that dental students and dentists seem to have issues with being empathic and more in tune with the patient (Sherman and Cramer, 2005, Raja et al., 2015).

On the other hand, even though every item with the exception of two ('*Being open and honest*' and '*Asking patient the right questions*') exhibited a significant difference between the researchers' scores and the students' scores, a considerable number of students assigned some of the items a score that was similar to that of the researchers. This indicates that some students did seem able to detect certain areas in which the dentist did not perform perfectly; for example, in '*The advantages and disadvantages of treatment options*' item, the students' mean score was 3.52, but it is clear from the graph that a large number of students scored it 2, as did the researchers. This could mean that students differed in their abilities to accurately assess some aspects of the consultation.

Other items were given a high score by both the researchers and the students, though significant differences still existed. Generally speaking, the gaps between the students' scores and the researchers' scores were smaller for items that were awarded a high score by the researchers. This was the case as students seemed to give the dentist a high score for most of the items, and their scores were therefore most likely to be similar to the researchers' scores for items that were assigned a high score by the researchers.

It was not clear if this difference in scoring by dental students and researchers was due to this assessment being done by dental students as opposed to practising dentists, who would have had some years of practice and experience and might therefore be more efficient in communicating with patients as well as more likely to detect the areas in need of improvement. As the sample in this study consisted of dental students from three different years, this issue could be

considered as a possible explanation for the differences between the two samples. These differences could also have occurred because dentists in general, as a number of studies have noted, may not possess a sufficiently high level of communication skills, especially skills needed to carry out a patientcentred consultation (Nestel and Betson, 1999, Choi et al., 2008), and communication skills could possibly decline during medical studies (Rider et al., 2006).

When viewing the cluster data analyses, there are apparent differences in the scoring by the researchers, which was treated here as a single value, and that of the students. It should be noted that the four clusters indicate a similarity in the ranked scores. When ranking the various clusters from the highest-scoring cluster to the lowest-scoring clusters, both students' scores and researchers' scores ranked the same. The only difference was that the students tended to give a higher score than the researchers. This illustrates that students were able to differentiate between the clusters in which the dentist succeeded and those in which he did not perform well. The implication of this finding is that the student sample and the researcher sample tended to view the consultation in broadly similar ways, with *information seeking* being rated as best in the clip and the lowest scoring cluster being *information giving*. This finding is suggestive of the fact that students are not too different from a panel of people trained in communication in terms of ability to distinguish between communication processes, although the quality of those communication processes was judged more favourably by the students than by the panel.

Many studies have suggested the need for increased and continuous training in communication skills for dental students and medical undergraduate students in general (Sherman and Cramer, 2005, Maguire and Pitceathly, 2002). This study reveals that dental students possess good skills to assess certain areas of communication, such as diagnosing the patient, describing the treatment and similar items, but that they might have some difficulties with correctly assessing other areas, such as showing compassion and detailing treatment options. The results of this study could help tailor communication courses to the needs of dental students by focusing on areas that they did not assess well. It can also assist with developing future measures that rely on an assessment of

communication by replacing questions that are somewhat subjective, such as *'showing compassion'*, with others that are more measurable and easier to assess, such as *'I gave the patient my email to contact me if they had any question or wanted some assurance'*.

Another possible solution to this issue would be to attach a guide to the questionnaire that includes a definition of any concept that people might struggle to define on their own as well as a list of activities that need to be carried out to satisfy the criteria. This problem of people defining concepts based on their own ideas or experiences was found in the first study in which dentists largely equated PCC behaviour with being compassionate, even though it might be larger than this.

There are many positive points of the MCCS survey. It covered a number of communication areas, as stated previously, which was not the case for some other measures that focus on one aspect of communication, such as a doctor's interpersonal skills (Burchard and Rowland-Morin, 1990), or which focus on other areas outside communication, including organisational issues such as access to care or the co-ordination of the care provided (Robinson et al., 2016). Using the same clip allowed for comparisons between students' and researchers' assessments. Various studies have used a staged clinical encounter in which patients are actors, rather than a 'real' one (Chan et al., 2010, Jewitt, 2012). This medical scenario has its own advantages; it eliminates the need to account for the variation that occurs due to differences between patients and their individual conditions as well as the differences in dentists' performances through separate visits with multiple types of patients.

In conclusion, this study has shed some light on students' abilities to accurately assess a consultation and the areas they need help assessing as well as areas they were able to assess easily and correctly. Although dental students evidenced a similar ability as experienced researchers to identify areas in which the dentist performed well, significant differences between dental students' and researchers' perceptions of the dentist's communication skills suggest that, from a quality point of view, students saw a better consultation than that observed by

the expert panel. Thus, while the basics of good communication were acceptable in the student sample, a tool to enhance their awareness of good communication, and eventually PCC, might be helpful.

This study has some limitations. First, data were treated as continuous even though they were obtained through a Likert scale. There has been debate over the ideal treatment of such data (Norman, 2010), and as with any statistical argument, there are advantages and disadvantages with the choice made.

Second, the ratings by the researchers were determined by two senior researchers and one PhD student, none of whom was a dentist or an expert in communication coding. However, all had experience in communication, and the two senior researchers were involved in teaching communication skills to undergraduate and postgraduate students at King's College. The junior researcher's scoring of some of the items was more similar to the scoring of the students than to that of the senior researchers. One explanation for this is that the level of subjectivity is especially high, although this is to be expected given the topic of study. Senior researchers' low scores could possibly be a result of their involvement in communication research, which may influence them to rate the dentist against an ideal style of communication that would result in the low scoring of the dentist.

Third, this measurement tool has been developed and validated for medicine, and particularly for general practice settings. It was used here in a revised form for dentists, with questionable reliability for one cluster of items. This might be a reason for some variation in the ratings of some of the items; terms and phrases that might be commonly used in medicine are different from those used in dentistry.

Finally, the study had a low response rate (11.99%). Although similar studies have reported comparable sample sizes, which would suggest that the final sample size of this study was acceptable (Hannah et al., 2004), the data obtained are only representative of a small subsection of the students training at KCL and might therefore be unrepresentative of the wider population.

5.6 Conclusion

In conclusion, this is the first study that uses MCCS to assess dental students' perceptions of the communication between a dentist and a patient. A number of studies have used this survey to assess patients' perception of their own communication in a consultation and their perceptions of their doctors as well (Brédart et al., 2015, Trudel et al., 2014). However, this survey tool has not been applied in dental settings before and, as such, all the findings reported herein are novel. This survey covers four areas of communication, which refer to those types of communication that usually occur in a consultation: information giving, information verifying, information seeking and socioemotional communication.

This study illustrates that dental students may need further support in 'detecting' good quality communication in others, but overall they are able to broadly assess general communication domains. On the basis of these findings, it was decided that they would be an acceptable sample to use in validating a newly developed PCC tool.

Chapter 6: Development and Validation of a Self-Reflection Tool for Dentists

6.1 Introduction

So far, the thesis has critically evaluated a body of literature aimed at demonstrating the usefulness (or lack thereof) of PCC as an approach in healthcare settings, particularly dental settings. It has argued that developing a PCC self-reflection tool for dentists could help them become more patient-centred by encouraging them to think actively of the concept and the way they practice. The first empirical chapter built on this literature, seeking to better understand the topic by considering the views of dentists who in theory worked within a PCC environment and were exposed to a practical model of PCC that built on information and choice. This work demonstrated that i) there is a lack of understanding of the concept of PCC, as dentists who were interviewed mostly thought they already practiced in a PCC way; ii) dentists are unrealistically optimistic in assessing their own skills in practicing PCC while at the same time thinking that other dentists, particularly those who are younger and dental students, might need help and would benefit from a PCC tool; and iii) that dental students are broadly aware of the function of good communication, but might need assistance with assessing the quality of such communication.

Together, these findings indicate the way to develop a tool to help support dentists' efforts to practice in PCC ways. This tool, like others, must be linked to a theoretical model. The tool also needs to raise awareness of PCC rather than measure PCC, given the lack of understanding of the concept. Finally, the tool needs to be brief and practical.

This chapter reports on the development of a tool that aims to support the practice of PCC, using the Scambler and Asimakopoulou (2014) hierarchy of PCC as the theoretical framework. In doing so, the tool was informed by the findings of the qualitative interviews conducted with dentists as presented in Chapter 4.

This chapter details the development of this PCC tool. The first part of the chapter describes the drafting of the new tool and how both the Scambler and

Asimakopoulou (2014) hierarchy and the interview data have informed this process. The second part describes the initial validation of the developed tool by assessing content validity, test-retest reliability and finally criterion validity.

6.2 Aim

The aim of this study is to develop and validate a PCC self-reflection tool that dentists can use to be more self-aware of how much choice and information they give to their patients.

6.3 Methods of tool development—overview

One of the main purposes of any developed instrument is to operationalise and measure a theoretical concept or phenomenon (DeVellis, 2016). DeVellis's guidelines on scale development were used as a guide throughout the process of developing the tool. Thus far, this thesis has argued for the importance of adopting a patient-centred approach in a consultation and has noted the lack of a practical guide in dentistry; the next logical step is to outline ways to adopt the concept in practice.

In taking a theoretical approach towards PCC and attempting to apply it in practice, the first step was to operationalise the concept. This step was achieved with Scambler and Asimakopoulou's (2014) hierarchy of PCC. The next step involved converting this hierarchy into a tool that dentists can easily use as part of their daily routine. To achieve this objective, dentists who would be in the target audience for the tool were interviewed and asked to comment on a) the PCC hierarchy, b) whether it could be used in a dental setting and c) how it could be used in a dental setting.

Based on these interviews, items for the prospective PCC tool were generated. After finalising the first draft, the items were presented to students who were all qualified dentists and studying for a master's degree in dental public health (DPH). They were prompted to comment on the clarity of the items and on whether they were straightforward and easy to answer. Based on this feedback, a number of minor modifications were made on some of the wording of the items.

Finally, the revised developed tool was sent to 10 dentists who had been previously involved in the interviews about the PCC hierarchy in order to assess the content validity of the tool. These steps are discussed in greater detail later in this chapter.

Figure 1 illustrates the stages of the tool development, with the first column presenting the step and the parallel column specifying what the step entailed.

6.3.1 Stages of tool development

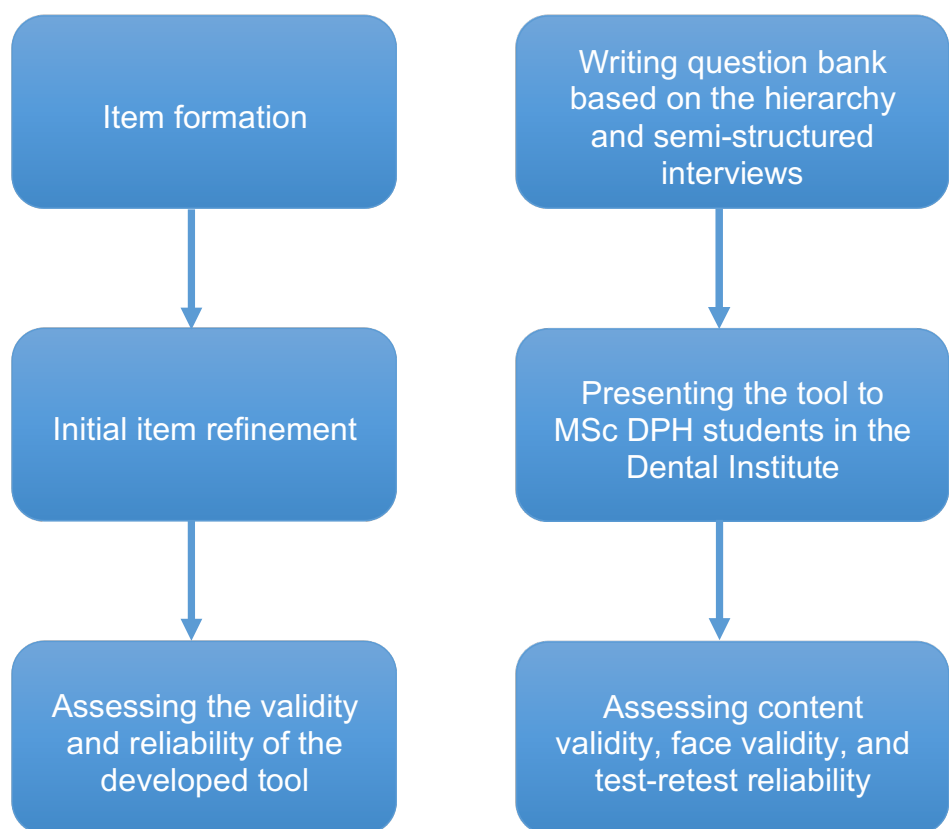


Figure 6. 1: Steps for developing the PCC tool (based on DeVelli's guidelines (2016))

6.3.2 Main purpose of the developed tool

The aim of this tool changed as a result of the work previously reported in this thesis. So, the original aim was to develop a tool that would be

- i. Based on a theoretical model
- ii. Brief and practical enough for use in dental clinical practice

- iii. Ultimately measuring how much of PCC was being delivered by the practising dentist; this latter aim rested on the assumption that:
 - a. Dentists were fully, accurately self-aware of how much or little PCC they provided at each consultation, and that
 - b. There was a generally accepted definition of PCC as a concept among practising dentist.

The data obtained in the early semi-structured interviews with dentists suggested that while the Scambler and Asimakopoulou (2014) model of PCC is potentially applicable to practice (point i) and that a tool based on it might have been appealing to dentists (point ii), there was neither a shared definition of the meaning of PCC for dentists (point iii-b) nor an objective assessment of dentists' own skills in delivering PCC (point iii-a). This latter issue is not unique to the dental profession (Walfish et al., 2012, Dunning et al., 2004).

As a result, the aim of the tool that was to be developed changed from a measurement tool to a self-reflection tool. It was asserted that before a concept can be measured, it has to be widely understood, and the person needs to have some awareness that they are truly delivering it. In the absence of those two requirements, the tool that the study was able to develop was one that might support dentists in becoming more self-aware of their PCC practice rather than a strict measurement tool.

6.3.3 Target audience

The intended users of the tool were practicing dentists, so patients' feedback on the consultation was deemed unnecessary here, albeit it is accepted that for any PCC tool to be comprehensive, a patient version will need to be developed in future work. There are patient measures available that are currently in use, and although they do not specifically measure the concept of PCC and rather evaluate some aspects of the patient-dentist communication (Newton and Brenneman, 1999, Keller et al., 2009), these measures are helpful to assess the communication of the dentist in general. However, they are unhelpful in that they add the patient's view perhaps a little too early and before dentists are able and

ready to consider how to implement PCC or some of its dimensions. Considering the lack of clarity surrounding the concept, efforts have also been made to study PCC from the patient perspective (Mills et al., 2015). It has been proposed that adding patient input before there is clarity on the dentists' view is unnecessary and potentially unhelpful. So, the stance of this thesis is that the obvious first step is to help the dentists become more patient-centred, then measure their performance from a patient perspective at a later stage once literature on PCC has reached a consensus on the definition of PCC and its ideal practice.

Therefore, the objective of this study was to help dentists think actively about the concept of PCC by reflecting on their own style during consultations rather than engaging in an objective, patient-verified assessment of dentist performance. This in turn will hopefully make dentists consider adopting the concept and demonstrate to them how it can be applied more effectively in relation to providing information and promoting and enabling patient choice.

This tool was intended to be designed for dentists in general rather than to focus on a speciality. It was decided that a general, basic tool for PCC in dentistry needed to be developed first. It could later be modified to suit the different specialities and settings in dentistry, and possibly to be used in other settings.

The rest of the chapter describes each step of both the tool's development and the initial validation of the developed tool. Each step has its own section. Each of these sections explores the importance of this particular step when developing a tool or validating it, how this step is generally carried out in similar studies in the literature and how the step was explicitly conducted in this study.

The chapter concludes with findings that demonstrate the tool through each of its revised versions.

Methods

6.4 Section 1: Tool development—Item formation

6.4.1 Importance

Developing a tool generally involves two main steps, with a few smaller substeps under each. The first step is generating items for the tool, while the second is choosing the appropriate scale on which to rate these items (Clark and Watson, 1995).

For the first step, item generation, there are two main ways – or a combination of both – for generating the items. The first approach uses the literature as the main source and is applicable when the subject is well studied and established. The second approach is to conduct interviews or focus groups with experts in the area under study, or with the intended users of the tool. This approach is usually employed if the literature is relatively new or if insufficient data are available in the literature (Hinkin et al., 1997, Rattray and Jones, 2007).

The present study adopted a combination of the two approaches in order to generate items. The intended users – dentists – gave valuable information and insights and helped ensure that the tool under development could be shaped by experiences of practice in a real dental setting. Without the user input, the tool might be comprehensive and cover all the relevant dimensions yet still end up discarded because it is excessively long or not user-friendly, for example. Using the literature in addition to users' feedback was also important. Here, the literature provided the operational definition for the concept of PCC, which helped ensure that the important dimensions – choice and information – were covered. As the concept was relatively new in dentistry, dentists' input was needed. There was, however, enough information in the literature to guide the development of the tool, and the interviews were used to help tailor it to dentists and a dental setting.

6.4.2 How item formation is carried-out in practice

Writing the items:

Item formation is an important first step towards tool development. Efforts must be made to ensure that the items are simple and easy to understand (Fowler, 1995). The use of negative wording (for example, *'the dentist should not recommend this treatment'*) is best avoided, as well as the use of double-barrelled items that might confuse the respondent and generate unreliable data (Kelley et al., 2003, Van Sonderen et al., 2013). Items should also be written in commonly used phrasings that are easily understood by the target audience of the tool (Salazar, 2015, DeVellis, 2016). It is also preferable to have short items or questions and to avoid the use of too many words in one item (Harrison and McLaughlin, 1991). These principles guided the tool development of this thesis. Accordingly, the items in the tool are short, and no negative wording has been used in any of the items. In addition, each item asks only one question.

Types of questions:

There are two types of question: open-ended and closed-ended. Open-ended questions grant respondents the freedom to write their own answers without the constraints of selecting from a list of limited choices (Geer, 1988). This type of question provides the respondent with either a small space to write a short sentence or enough space to write a few paragraphs, if not more in some cases. In closed-ended questions, the respondent rates or scores the item on a scale or specifies a 'yes' or 'no' answer (Taylor-Powell, 1998).

The main aim of this tool is to help dentists think more actively about their own performances after consultations and to reflect on whether they provided patients with enough information and involved him or her in the decision-making process while taking into consideration the patient's preferences for high or low involvement in the consultation. Therefore, open-ended questions, although they have many advantages (Haddock and Zanna, 1998) and allow for individualised responses, were not suited to the purpose. The focus here was not on obtaining in-depth answers regarding how the dentists see their performance or the justifications for practicing at a particular level of the hierarchy. Rather, it was to

create a brief report, selected from the available options, on how they performed in the consultation. The limited time that dentists have in a day to complete a questionnaire was also taken into account.

Dentists interviewed in the first study commented repeatedly on their need for a tool that was short and easy to fill in. There is also the issue of analysing these data; open-ended questions require a team to analyse the results, and the variability in responses would need to be grouped and assessed. On the other hand, using closed-ended questions meant that the dentists themselves could simply go through their answers from the different visits and compare them, both in terms of individual patients and across patients. By doing this, they could visualise their progress over time, which might motivate them to be more patient-centred.

For these reasons, a short, closed-ended questions checklist seemed more appropriate.

6.4.3 Procedure

For this study, the first step in generating the items was making sure that all four levels of the hierarchy were covered (See Figure 4.1) for the Scambler and Asimakopoulou (2014) hierarchy of PCC. The hierarchy was the theoretical basis for this tool; therefore, it was crucial to ensure that all aspects of the hierarchy were translated into items in the tool.

To this end, items were generated for each level of the hierarchy in terms of both information and choice. This resulted in three items for 'information', three items for 'choice' and three items for 'tools', which could be used to assess the level of choice given and information shared. These items covered the different ways through which, according to the hierarchy, information and choice could be shared and presented during a consultation. Initially, other items were written as well that were based on studying similar types of questionnaires that aim to measure PCC, such as (Stewart et al., 1995, Little et al., 2001b). These initial items included generic questions, such as 'I greet the patient when s/he comes into the office'. They also included specific questions related to how the dentist

communicates with the patient, such as ‘I asked the patient if s/he understood everything we discussed’ and ‘I gave the patient information using a language the patient can understand’. After a number of discussions among the three researchers (the PhD student and the two supervisors), all items except those generated from the hierarchy were deleted. The reasons behind this decision were as follows:

1. The other items had already been covered in a number of scales (Waylen et al., 2015). These measured features of a basic, humane, ‘nice’ consultation rather than explicitly PCC as informed by information giving and choice. As such, they were deemed not central to this study.
2. Including items on the basic features of good communication would result in more questions for the dentists to answer, which could lower the likelihood of the tool being used in practice due to time constraints. As a result, the items generated were restricted to those directly mapping onto the levels of the PCC hierarchy.

6.4.4 Findings

At the end of the item generation section, the tool had three sections with three items each, for a total of nine items. The tool in its first iteration is presented below.

Table 6. 1: *Tool version 1*

Information:
a. I gave the patient information on the most suitable option
b. I gave the patient information on two or three suitable options
c. I gave the patient information on all the different options available
Tools:

<ul style="list-style-type: none"> a. I advised the patient on what would be the best option b. I discussed with the patient the advantages and disadvantages of the best two or three options c. I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the notreatment option
Choice:
<ul style="list-style-type: none"> a. I made the final decision on how best to deal with the problem b. The patient and I both contributed to the final decision c. The patient made the final decision

6.4.5 Summary

The initial items were generated based on the Scambler and Asimakopoulou's hierarchy of PCC. The tool served as the definition of the concept to be operationalised in an easier and clearer way in the tool. The result of this process was a tool with nine items divided into three sections, which were titled: information, tools and choice. There was some consideration of adding more items to reflect the broader definition of PCC, but after further deliberation, this idea was discarded. Thus, the focus remained on how to translate the hierarchy from a model into a practical tool.

6.5 Section 2: Using dentists' interviews to refine the tool

6.5.1 Importance

Conducting interviews with experts in the field or with targeted users is essential for several reasons when developing a tool (Vogt et al., 2004, O'Cathain et al., 2007). It is necessary to ask people who are involved in the subject under study for their expertise and opinions, especially if the area of interest is new and the literature on it is still developing. In addition, asking them to help design the tool could increase the likelihood of its adoption and could help ensure that important elements have been heard and covered (Barbour, 1999). This section describes

the importance of interviewing dentists (users) before developing a tool, followed with the literature on how to adopt this method in practice and finally how exactly this method was adopted in this study.

6.5.2 How do qualitative interviews inform item formation in practice?

Ideally, exploratory qualitative interviews or focus groups with the intended users or experts are conducted before developing a tool (Tennant et al., 2007). The interviews are carried out to help identify the different dimensions to cover in a tool, and they can help with the more technical aspects, such as the tool's layout or the item arrangement. Interviews can also help operationalise the concept and generate the items for the tool. In sum, these interviews can focus on one of these issues or on a combination of them. Interviews can also be conducted twice – before and after writing the items – to ensure that they reflect the discussion (Czaja, 1998). If the concept or area of study is sufficiently defined and operationalised in the literature, or if there is enough information from previous studies, these subsequent interviews are not needed (Hinkin, 1998).

6.5.3 Procedure

This study uses dentists' comments, which were collected and analysed from the interviews conducted with them (reported in Chapter 4) on the usefulness of the hierarchy as a PCC model, in order to modify the items and inform the way in which the items were worded and presented. The following section specifies precise dentists' comments from those interviews and the actions that were consequently taken when shaping items.

6.5.4 Findings

After collating the variety of ways for a dentist to present information and choice to a patient, a list of items was developed. The dentists' suggestions for generating the items were incorporated and then refined for the final draft of the tool. In addition, the dentists' opinions and suggestions played an important role in the design of the tool itself and in the number of items that were included. The

following quotes illustrate the feedback that was received and the way in which it was used to develop the items and adjust the checklist:

1. Dentists suggested developing a tool that is simple, clear, and easy to complete:

'well you don't want it terribly cluttered because then you are not going to want to use it, it's going to be fairly simple isn't it.' (Interview 17)

'because it's going to compete for their time and dentists are going to fill it in, it's going to be something they can do very, very rapidly because otherwise it won't be done, so be very clear about the several two or five options, very clear about what option they achieved without having to stop and think about exactly what, what a particular word means for example. So I think maybe just make it something to complete very quickly and very clear about what the different categories mean.' (Interview 11)

ACTION: Drawing on the respondents' preference for a short, easy-to-complete tool, the items were re-examined and repetitive items were eliminated. These included a number of items that had already been covered sufficiently by other assessment tools, as reported earlier, such as how friendly the dentist was or whether they greeted the patient when he or she first entered the clinic.

2. The level of information and choice provided is not influenced by the dentist alone, according to the dentists who were interviewed. If patients do not want to be part of the decision-making, then the dentist cannot impose it on them:

'I would like something that you would give to the patient to tell them what their role is in this interaction, so they have a part to play, and if they are not interested, then by large the dentist is not going to be interested either. So the dentist and the patient must be informed.' (Interview 9)

'so, yes, I think it is representative, but I think it is very dependent on the patient it is applied to.' (Interview 8)

According to dentists, there was also the issue of special cases in which patients cannot take part in the decision-making process, for example with underage patients or patients with learning difficulties, in which cases the dentists are the ones who make the final decision for the patients.

'so if you have a patient who has learning difficulties, then the explanations need to be tailored to a level that they are able to understand, or if you are not able to discuss it with people who care for that person, in those circumstances the decision has to be the clinician's.' (Interview 17)

ACTION: A 'patient' section was added in order to reflect the patient's interest level in being part of the decision-making process and the amount of information and choice the patient was seen to require from the dentist. It was also intended to account for the special cases in which the dentists, for a number of reasons, had to make the final treatment decision themselves. This action was taken in order to help the dentists consider factors that were outside of their control and to deal with their concerns that, in some cases, they tried to give patients choice and control, yet patients were either unwilling or unable to take either or both of these.

3. Level 3 from the hierarchy, namely information, choice and, in particular, the term 'tools' for informed choice, caused confusion among the dentists who were interviewed. They felt that 'tools' could have countless meanings to countless clinicians. Because of the vagueness of the term, action was taken to clarify it and focus it to restrict its meaning.

'so in that case I think you have to be very clear about, as I discussed earlier, what you mean by the word 'tool', for example.' (Interview 11)

'I think lv.3 is not at all clear from a, by what you mean by 'tools for informed choice', the way that you explained it to me isn't apparent from the way it's explained in the hierarchy.' (Interview 17)

‘what I’m saying is what are the tools? It is alright saying there are tools available, but what are the tools?’ (Interview 8)

‘oh like I said, to actually describe what the tools are, you can’t really describe how much information you would want to give and share with the patient until you know at this level what tools the patient can use to be able to interpret this information.’ (Interview 8)

ACTION: It was decided that the best way to address this feedback was by replacing the word ‘tools’ with the phrase ‘advantages and disadvantages’ so that items 2 and 3 in the ‘Tools’ section now read: *‘I discussed with the patient the advantages and disadvantages of the best two or three options’*, and *‘I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option’*.

4. Dentists seemed to have some difficulty quantifying how many options they should offer patients, especially at level 2: *‘information and choice’* and 3 *‘information, choice, and tools for informed choice’* in the hierarchy.

‘I don’t know how much choice you give, you know, do you just sort of give them the main three or four, or do you give them every single option under the sun? And to what extent do you go through all of the pros and cons?’ (Interview 11)

ACTION: Limiting the options in the second item under ‘Choice’ to ‘two or three’ when talking about ‘options’ in the developed tool was carried out in order to make it easier and estimate how many options should be provided by a dentist who is practicing at level 2 and 3 in the hierarchy.

So, at the end of this development phase that incorporated qualitative feedback from potential users, the tool changed to contain four sections and 13 items in total: four items under the patient sections, and three items under each of the other three sections. See below in Table 6.2 for second version of the tool.

Table 6. 2: *Tool version 2*

Select the statement that most reflects what happened during the visit
Patient:
<ul style="list-style-type: none"> a. This patient is not suited/able to make decisions about the treatment him- or herself b. This patient asked me to make all the decisions about the treatment on his or her behalf c. This patient wishes to make decisions jointly with me about the treatment d. This patient wishes to make decisions about the treatment him- or herself
Information:
<ul style="list-style-type: none"> a. I gave the patient information on the option that is most suitable for him or her b. I gave the patient information on two to three options that may be suitable c. I gave the patient information on all the different options available
Tools:
<ul style="list-style-type: none"> a. I advised the patient on what would be the best option b. I discussed with the patient the advantages and disadvantages of the best two or three options c. I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option
Choice:
<ul style="list-style-type: none"> a. I made the final decision on how best to deal with the problem b. The patient and I both contributed to the final decision c. The patient made the final decision

6.5.5 Summary

This step of the tool development incorporated the suggestions and voices of the potential users of the tool and made efforts to translate these suggestions into

items and then change the items to reflect the suggestions, if needed. This process resulted in the addition of a fourth section named 'Patient', which included four items. This section reflected patient interest and ability to engage in the decision-making process. This stage of revisions was critical because it introduced the potential users' voices into the tool. The patient section could also be considered a defence against commonly used arguments that not all patients want to be given choice or information and that PCC therefore cannot be adopted universally for all patients (Little et al., 2001b). This argument is central to the idea of practicing PCC. It could be the case that patient disinterest in treatment engagement might be a reason for not providing a PCC consultation. However, that is to confuse lack of involvement with lack of wishing to be treated in a patient-centred way (Stewart, 2001). It is asserted that giving patients as much or as little choice and information as they want (even when they ask the clinician to make the decision for them) is patient-centred. Inclusion of this patient section could potentially eliminate these problems with conceptualising PCC in practice.

6.6 Section 3: Pre-testing the developed tool

6.6.1 Importance

Initial testing of the wording and the readability of a developed tool and its layout is one of the essential steps to carry out before using the tool. This ensures that it is correctly understood and can be easily completed by its potential users (Presser and Blair, 1994). Testing the tool first on a small sample could save the developers money and time by allowing for error detection and a revision of the draft tool before starting the actual validation or use of the tool on a large sample (Diamantopoulos et al., 1994). It might help prevent or reduce issues such as incomplete or unreturned questionnaires (Drennan, 2003, Presser et al., 2004) in the long run. The main aim of pre-testing a tool is to check for any misunderstanding of the questions that are asked and if the questions could be interpreted differently by respondents (Collins, 2003). Therefore, pre-testing the tool was imperative to identify any items that were confusing, difficult to recall or vulnerable to misinterpretation, and would thus need to be reworded and revised.

6.6.2 How pre-testing is carried out in practice

Ideally, the people who test the wording and general design of a tool under development need to be similar to, if not part of, the population who will use the tool later (Willis, 2004). Pre-testing can occur through different methods (Presser and Blair, 1994). Some common methods are cognitive interviews, behaviour coding and respondent debriefing (Hughes, 2004) as well as the use of expert panels (Czaja, 1998).

The cognitive interview usually employs 'think aloud' techniques, which can be either concurrent or retrospective. In the concurrent 'think aloud', the respondents are asked to give their thoughts on each question once they answer it rather than at the end of the interview, which is the case with the retrospective 'think aloud' technique. Respondents are asked to explain their thought processes as they answer the questions. The 'think aloud' technique aims to identify if the respondents have any problem understanding the questions and if they encounter any issues recalling answers to these questions. Probes are commonly used in these types of interviews.

The next main method that can be used in pre-testing a survey is behaviour coding, whereby the interviewer codes how many times a respondent has to ask for a clarification of the question or if the respondent has difficulty with answering a question. The codes are then quantified to determine how many times the respondents experienced a problem with answering the questions.

The third method that can be used to pre-test a survey is 'respondent debriefing', although it can be more precisely classified as 'field pre-testing' (Czaja, 1998). 'Respondent debriefing' is usually used at a later stage in survey development compared to the other two methods (Hughes, 2004). The method checks if the respondents have difficulty understanding some of the terms or concepts used and whether or not they can interpret the questions correctly. This technique also checks which questions the respondents failed to answer correctly, for example due to issues with recall. Additionally, it examines how respondents select choices in closed-ended questions and if any questions need to be re-examined.

Finally, expert panel reviews are also a common method in the pre-testing step of tool development. The expert panel is usually used to evaluate both issues with question comprehension and possible difficulties with the data analysis. Czaja (1998) has listed the following objectives of an expert panel pre-testing method: *'identify potential respondent comprehension'; 'identify potential interviewer problems'; 'identify potential data analysis problems'; and 'obtain suggestions for revising questions and/or the questionnaire'.*

A study that has examined the effectiveness of the various pre-testing methods has found that expert panels were able to identify more problems with the survey than with other pre-testing methods (Presser and Blair, 1994). For this reason, and since the tool items were neither complex nor engaging with complex issues, it was decided to assess the tool through an expert panel. This method also addressed the practical issue that an expert panel was readily available in the setting where the tool was developed.

6.6.3 Procedure

In this study, a panel were asked to comment on the comprehensibility of the questions. The developed tool was presented for initial revision to an MSc class of DPH students (N=10 students) who were all qualified dentists studying for a postgraduate-taught degree. The DPH group was deemed appropriate because they had already qualified and had experience of exposure to consultations with diverse types of patients. In their pre-MSc time, they had spent time as practicing dentists. Therefore, they knew the components of a consultation and had practiced them in 'real life' with real patients, and were thus members of the group of intended users of the developed tool. At the same time, they were all proficient in English, as they had passed KCL's stringent admission criteria for entry to one of the college's postgraduate programmes, and as such were deemed to be not just clinically but also academically sound.

The exercise was conducted at the end of a class for DPH students, who were asked if they had a few minutes to review a tool developed for dentists and offer feedback. All students agreed, and it was distributed to them after a brief

introduction of the purpose of the tool. Around 10 minutes was allotted to read through the items and consider the layout of the tool. After that, they were prompted to comment on the tool, including its general design and the wording of each item. The whole process took approximately 25 minutes.

6.6.4 Findings

Participants suggested clarifying the wording of certain items. These changes were made to item 1 in the 'Patient' section, item 1 in the 'Information' section and item 1 in the 'Tools' section. The modifications were as follows:

- Item 1 in the 'Patient' section was worded as follows: *'This patient is not suited/able to make decisions about the treatment him- or herself'*. The suggestion made by the panel was to just write *'unable'* instead of *'not suited/able'* because they felt this was somewhat confusing.
- Item 1 in the 'Information' section was initially worded as follows: *'I gave the patient information on the option that is most suitable for him or her'*. Students felt that the type of decision-making was unclear. Adding the term *'clinically'* would ensure that all dentists who used the tool answered with the same idea in mind. The panel deemed it unlikely that dentists would have the patient's social or psychological issues at the forefront of their mind when deciding on the 'best' option; for this reason, it was rather suggested that this be made explicit in the tool by recognising that they would focus mainly on the clinical symptoms and how to best alleviate these from a purely clinical perspective. Consequently, this revision was adopted.
- Under the 'Tools' section, item 1 originally read *'I advised the patient on what would be the best option'*. This was modified to include the phrase *'from a clinical perspective'*. The justification for this is the same as for the previous item. Leaving it open would have enabled differences in interpretation per dentist, so adding this phrase clarified the criteria for the dentist's decision on the patient's best option.

At this point, this third version of the tool had four sections and a total of 13 items, with the wording of a few items narrowed in order to clarify the meaning. See Table 6.3 that follows.

Table 6. 3: *Tool version 3*

Select the statement that most reflects what happened during the visit
Patient:
<ul style="list-style-type: none"> a. This patient is unable to make decisions about treatment him- or herself b. This patient asked me to make all the decisions about treatment on his or her behalf c. This patient wishes to make decisions jointly with me about his or her treatment d. This patient wishes to make decisions about treatment him- or herself
Information:
<ul style="list-style-type: none"> a. I gave the patient information on the option that is clinically most suitable b. I gave the patient information on two or three options that may be suitable c. I gave the patient information on all the different options available
Tools:
<ul style="list-style-type: none"> a. I advised the patient on what would be the best option from a clinical perspective b. I discussed with the patient the advantages and disadvantages of the best two or three options c. I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option
Choice:

- a. I made the final decision on how best to deal with the problem**
- b. The patient and I both contributed to the final decision**
- c. The patient made the final decision**

6.6.5 Discussion

This third version of the tool benefitted from some minor but noteworthy modifications recommended by dentists who were studying for a higher degree. The researchers briefly discussed all of the changes that the dentists had suggested and agreed that these changes had to feature into the tool. The changes revolved around narrowing and focusing the wording of the items so that they could not be interpreted in multiple ways by dentists. These revisions effectively sharpened the focus of the tool to make it more clinically focused. This step showcases the importance of involving people who are the potential users of the tool and who are most knowledgeable of the context of their work and how they and their colleagues could understand the items. They easily noted some words that could help improve the wording of the tool in general and make the meaning of each item more clear and easy to understand.

6.6.6 Summary of item formation and pre-testing procedures

As indicated, the original tool items that were assembled on the basis of the theoretical model behind the tool, underwent substantial revision and transformation following feedback from practising dentists (Chapter 4) and a panel of postgraduate students.

Table 6.4 summarises the changes proposed by the dentists' semi-structured interviews and the feedback of the postgraduate panel, and which led to version 3 of the tool.

Table 6. 4: *Justifications for the inclusion of each item*

Item	Justification
Patient: Select the statement that most reflects what happened during the visit	
1. <i>This patient is unable to make decisions about treatment him- or herself</i>	<p>This item was added because dentists argued that some patients might be unable to make a decision themselves. The dentists said that in these cases, they had to make the decision for the patient.</p> <p><i>'but other patients, especially those with, we see here, maybe with learning disabilities or whatever are going to be much more guided in the hierarchy. So they will be further down lv.2 and even possibly lv.1, where you are making the total decision for them.'</i> (interview 8, pg.3)</p> <p>Inclusion of this item can help differentiate between a dentist who did not involve a patient in the decision-making process who was able and willing to do so, and a dentist who did not involve the patient because of factors outside his or her control. If the dentist ticks this option and then ticks that he or she did not give a patient full control or did not give the patient all the different options, the action will be understood as a consequence of something beyond the dentist's control. It could even be considered in favour of the patient.</p>
2. <i>This patient asked me to make all the decisions about treatment on his or her behalf</i>	<p>This item was added based on dentists suggesting that some patients have no interest in being part of the decision-making process and would prefer to leave all the decision-making to the dentist.</p> <p><i>'[...] but some patients don't want to work at lv.3 or lv.4, they just want to be told what's good for them by somebody else, by the</i></p>

	<p><i>specialist, the person that knows, and they won't want to make their own decision.'</i> (interview 14, pg.4)</p> <p><i>'quite often, if you start telling patients all the possible information, then they just say I just want it out, I just want this, or they just want to deal with pain, and then quite often they say, well you're the doctor, what's your decision?'</i> (interview 15, pg.4)</p> <p><i>'because there are a lot of patients, particularly those we see in health services who aren't used to having a choice, or they are not that interested, or they just want things to be over and done with'</i> (interview 3, pg. 7)</p> <p>By including this item, it is possible to account for dentists who made the decision because the patient wanted them to as well as for dentists who made the decision regardless of the patient's interest in being part of the decision-making process.</p>
<p>3. <i>This patient wishes to make decisions jointly with me about treatment</i></p>	<p>This item was added to represent patients who want a shared decision-making.</p> <p><i>'also, one of the problems we face consistently is that patients don't always want to have this level of autonomy.'</i> (interview 1, pg. 2)</p> <p>The item can help differentiate between dentists who help the patient arrive at the final decision because the patient wanted them to, and those who impose their views regardless of the patient's wishes.</p>
<p>4. <i>This patient wishes to make decisions</i></p>	<p>This item represents patients who want to make the final decision themselves; the dentist in this case acts as a 'guide' presenting the choices and the</p>

<p><i>about treatment him- or herself</i></p>	<p>advantages and disadvantages of each, then lets the patient make the decision. The item also represents patients who want an ‘informed choice’, as this type of decision is commonly called in the shared-decision-making literature.</p> <p><i>‘an example of that is removing their wisdom tooth—they are not in pain, they noticed there might be a problem in the future, they have absolute control ... there is no driving issue there whatsoever, all we do is point out there is a problem, and they may or may not elect to do something about it and we leave them completely to make the decision with all the information we can give them and their investigation, research, etc.’ (interview 1, pg.4)</i></p> <p>The item can help gauge the dentist’s role in the decision-making process more accurately. Did the dentist make the decision for the patient when the patient wanted to make that decision him- or herself? Or did the dentist leave the patient to make the final decision when the patient wanted a shared decision-making process?</p>
<p>Information: Select the statement that most reflects what happened during the visit</p>	
<p><i>1. I gave the patient information on the option that is clinically most suitable</i></p>	<p>This item represents the first level of the hierarchy, at which the dentist gives the patient information on one option only. This option is chosen by the dentist as the best option based on patient clinical symptoms only, without considering the psychological or broader social factors. The term ‘clinically’ was added based on the comments made by MSc students who felt it would make the wording</p>

	<p>clearer and eliminate any possible confusion for dentists using this tool.</p> <p><i>'if you have difficulty communicating, if you have learning difficulties, then the whole hierarchy is constrained. You may only be able to operate at lv.1 because you are intellectually not capable of going beyond lv.1.'</i> (interview 5, pg.2)</p>
<p>2. <i>I gave the patient information on two or three options that may be suitable</i></p>	<p>This item could be used to represent both the second and third levels of the hierarchy in terms of information. The item shows that dentists gave the patient information on a number of options, around two or three, but not all of the possible options available. According to dentists interviewed, this might be the most frequently used type of information-giving by dentists, especially those practicing in NHS settings and particularly dentists in general practice.</p> <p><i>'So if you are in NHS practice where you have to see 50 patients a day to make a living then you are not going... this information pathway, its takes too long'</i> (interview 9, pg.2)</p>
<p>3. <i>I gave the patient information on all the different options available</i></p>	<p>This item represents the fourth level of the hierarchy in terms of information. According to dentists interviewed, this item is more likely to be practiced in private settings, where patients have paid for the dentist's time, and in elective surgery settings, which also can be found more in private practices.</p> <p><i>'it's a choice between take it, leave it, and various treatment options that might be appropriate for that patient.'</i> (interview 4, pg.1)</p>
<p>Tools: Select the statement that most reflects what happened during the visit</p>	

<p>1. <i>I advised the patient on what would be the best option from a clinical perspective</i></p>	<p>This item generally represents the first level of the hierarchy, where the dentist more or less makes the decision for the patient. The item represents a dentist who gives the patient information on one option only. That option is the ‘best option’ for the patient based on the dentist’s judgment and ‘clinical’ assessment of the patient’s condition. The phrase ‘from a clinical perspective’ was added after presenting the tool to the postgraduate student panel, who suggested that adding this phrase would remove any possible confusion for the dentists filling in the tool because it focusses on the criteria that dentists practicing at the first level of the hierarchy will likely follow as a guide for judgement. According to the dentists interviewed, giving only one option is not ideal but nevertheless necessary in some cases.</p> <p><i>‘what they really want to say is ‘I trust you, I’m lost now, tell me what you think and I’ll go with you’. Now that’s an element of medicine as well, you can’t get away from it. It exists ...’</i> (interview 9, pg.1)</p>
<p>2. <i>I discussed with the patient the advantages and disadvantages of the best two or three options</i></p>	<p>This item can be used to cover both the second and third levels of the hierarchy, at which the dentist gives the patient information and some details on the advantages and disadvantages of two or three options. A dentist’s placement at the second or third level of the hierarchy depends on how they answer the other sections. Interviewed dentists generally said that they provided, and in some cases rated (from best to second best, etc.), a number of options to the patient. They seemed to consider this level and way of presenting the different options to be the most realistic, especially for general practitioners.</p>

	<p><i>'a patient needs ... further information about the advantages and disadvantages of each of the options, then that moves us to lv.3.'</i> (interview 4, pg.1)</p>
<p>3. <i>I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option</i></p>	<p>This item can generally be used to describe the fourth level of the hierarchy, but it can also cover the third level. Dentists can provide all the options available in both the third and fourth levels of the hierarchy; the difference is that at the fourth level, it is the patient who makes the final decision. That means this item can be selected by dentists practicing at either the third or the fourth level. This item, according to the dentists interviewed, could be difficult to adopt in a busy practice, or in some other cases, as can be seen from the following quotes:</p> <p><i>'[...] here are the pros and cons, the pluses and minuses of each of those, how do you feel? And the patient makes a decision'</i> (interview 8, pg.3)</p> <p><i>'in order for you to provide the patient with tools to make an informed choice that takes time'</i> (interview 5, pg.5)</p>
<p>Choice: Select the statement that best reflects what happened during the visit</p>	
<p>1. <i>I made the final decision on how best to deal with the problem</i></p>	<p>This item can only be used by dentists practicing at the first level of the hierarchy, in which the dentist makes the final decision. The dentists interviewed did not seem to favour this way of making decisions, but they agreed that this might be acceptable in certain cases, such as with young patients or patients with learning difficulties.</p> <p><i>'depending on the age of the child, because if it is a younger child, we can't, it makes it</i></p>

	<i>difficult to involve them in the decision-making process' (interview 2, pg.2)</i>
2. <i>The patient and I both contributed to the final decision</i>	<p>This item can represent both the second and third levels of the hierarchy. Both the dentist and the patient contribute to the final decision. Initially, adding the word 'equally' was suggested, but after some consideration it was decided that this would not always be the case. The interviewed dentists seemed to like this option the most, as can be seen from the following quote. In their view, this level is the most beneficial for both dentists and patients, and it is the level most patients prefer.</p> <p><i>'I think even here in health service, we still have an obligation to give patient the choice, so I can't see how can you possibly work below lv.2, I'd hope so.'</i> (interview 3, pg.6)</p>
3. <i>The patient made the final decision</i>	<p>This item represents the fourth level of the hierarchy, which is designed to represent a consultation in which the patient has been supported in such a way that he or she is able and willing to make the final decision about treatment. The interviewed dentists suggested that this item might be best suited in environments such as elective surgery or in private settings. Reasons were that in such settings, i) patients and dentists are not constrained by issues such as budgets, making absolute treatment choice a possibility, and ii) other organisational issues would be absent, such as time constraints, that prevent a full range of choices being made available to patients.</p> <p><i>'because the patients have the information they require to make an informed choice, which could be one of the options or could be to do nothing, and it's the patients' choice by</i></p>

	<p><i>and large as to which of these options they go for' (interview 4, pg.2)</i></p> <p><i>'..... if the patients went to a private practice, they got all the time in the world to talk to someone, the patient is paying for their time, so its depend on the population you treating, and the time you have' (interview 9, pg.2)</i></p>
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6.7 Section 4: Assessing the content validity of the developed tool

6.7.1 Importance

Assessing the validity and reliability of a newly developed tool is a key step before using the tool. These assessments ensure that the newly developed tool measures what it is supposed to measure and does not cover aspects of another construct. They also ensure that the result would be the same if the test were conducted at another time. For example, a measure developed to assess if a person has depression should produce a score reflecting depression only and not anxiety. It should also produce the same or similar results for the same person across time, unless there is a real change in his or her depression level.

This section describes the content validity assessment carried out after the development of the tool. Content validity is considered an important step in any validation process (Sireci, 1998). The literature has defined types of validity differently, with some studies using terms such as face validity and content validity interchangeably (Hardesty and Bearden, 2004). Others have provided a clear distinction whereby face validity is whether the developed scale seems to measure what it is supposed to measure. This can be assessed by presenting the scale to a layperson; and if they answer with a reasonable description, then the scale is considered to have face validity. For its part, content validity has many definitions (Haynes et al., 1995), but most of them essentially share the same

underlying concept. The term usually refers to an assessment of whether the scale measures the construct that it is supposed to measure and whether the items in the scale cover the dimensions of the construct. This is usually assessed by a panel of experts on the construct (Sireci, 1998). Ensuring the content validity of a tool includes a number of *a priori* and *a posteriori* steps, which the following section discusses (Beck and Gable, 2001).

6.7.2 How validity is assessed in practice

For this study, the intended function of the developed tool is to use it to self-reflect on one's personal performance in relation to PCC during a particular visit, with the assessment ideally completed immediately or within a short period after the visit.

Because this tool was developed based on semi-structured interviews that were conducted with dentists – the target audience – and on a hierarchy that was developed after a review of the literature, these can be considered the first two steps towards ensuring that the developed tool is content valid (Rattray and Jones, 2007) and represent the *a priori* steps to be taken when developing the tool. An *a priori* step in content validity is generally concerned with defining the content domain of the tool (Beck and Gable, 2001).

For the *a posteriori* step, the content validity index (CVI) was selected as a method to assess the content validity of the developed tool. This index is one of the most acceptable methods of analysing and assessing the content validity of a developed tool (Polit et al., 2007). The CVI considers how relevant and representative each item in the tool is by quantifying the experts' reviews of the relevance and representativeness of the items in a tool with regard to the construct the tool is intended to measure. To achieve this, the items in the tool should 1) measure the construct they intend to measure and 2) cover all the dimensions needed to measure the construct. The CVI for each item (I-CVI) should be calculated, and other types of calculation can be done as well, such as calculating the average CVI for the tool (S-CVI/Ave.), which is the total of the I-CVI divided by the number of items. In this study, the I-CVI was calculated. Based on

Lynn (1986) recommendations, each item should have an I-CVI score of .78 and an S-CVI/Ave. of .90 and be judged by 6 to 10 experts. The results of these calculations are reported later in this chapter.

As a first step, the tool was sent to 10 experienced dentists from the same participant group who contributed to the interviews reported in Study 1, Chapter 4. It was deemed necessary to return to the same sample because they were the most knowledgeable people on issues of the model's practical applications, having taken part in the original interviews and offered their views on the tool under development. It was deemed that these dentists could assess whether the items reflect the suggestions they made. Therefore, it is important to know whether they felt the developed tool measured the intended construct and whether the tool's items covered the dimensions of the construct.

According to Lynn (1986), having more than 10 people is unnecessary for rating items in any scale for relevance. As for the rating scale, some have suggested using a four-point rating scale to avoid raters using the midpoint (neutral) (Lynn, 1986). Others have recommended a five- to seven-point evaluation scale (Haynes et al., 1995). A four-point rating scale was chosen for this study because avoiding the midpoint option was thought to encourage respondents to actively think about selecting a point. This would more accurately represent their views on the item and whether it was needed. In other words, it was felt that the midpoint could be used to avoid contemplation of tricky items, so the four-point rating scale was chosen.

6.7.3 Procedure

All of the dentists who took part in Study 2 (the semi-structured interviews) were emailed and asked to rate the clarity, the representativeness of the construct, the ease of response and the relevance of the items in the developed scale on the four-point Likert scale. The e-mail contained a link to the survey. Respondents were also asked to fill in some basic information, namely their age, gender and speciality. At the end, they were asked if they thought the developed checklist could be used to assess the concept of PCC as defined in the hierarchy. Finally,

an open-ended question was added for any additional comments. The survey was designed and run using Qualtrics software.

Of the 20 emails sent to the original panel, one email was returned because the dentist had retired. After three weeks, a reminder was sent. No second reminder was needed since the target number of 10 was achieved following the first reminder. The invitation email was sent on the 13th of April, 2016 and the reminder email was sent on the 4th of May, 2016.

Rating scale:

The rating scale used to assess the content validity was developed based on a review of a number of articles and assessment of the types of scales they used or suggested (Rubio et al., 2003, Grant and Davis, 1997, Gabel et al., 2011, Leung and Shek, 2011). Other means of assessing the CVI are available, but this scale seems straightforward and covers the main questions that are needed to assess the CVI of an item. These appear in the table below.

Table 6. 5: *Illustration of the rating used*

<i>Relevance</i>	1=not relevant 2=somewhat relevant 3=relevant but needs minor alteration 4=very relevant
<i>Clarity</i>	1=very unclear 2=unclear 3=clear 4=very clear
<i>Representativeness of the construct</i>	1=item is not representative 2=item needs major revisions to be representative 3=item needs minor revisions to be representative 4=item is representative
<i>Ease of response</i>	1=very difficult, 2=difficult 3=easy 4=very easy

In addition, at the end of the survey, experts were asked to give a yes or no answer to the question: *‘Do you think this checklist can assess the concept of PCC as its defined in the hierarchy?’*

Ethics:

An amendment to the original ethics application was submitted to the KCL ethics review body to request that this part of the study be given ethical clearance. The study was cleared. Reference number: BDM/14/15-7 (Appendix.6).

6.7.4 Findings

This section briefly presents the sample demographical information followed by the CVI calculations.

Demographics:

The table below displays the age category for the sample.

Table 6 6: *Age categories of CVI sample*

Age category	No. of dentists
45–54	1
55–64	7
65–74	2
Total	10

As this table reveals, the majority (70%) of the dentists who took part in the content validity assessment were in the age category (55–64). One was in the younger age category (45–54) and two were in the older age category (65–74).

The next table shows the gender split of the experts in this study.

Table 6. 7: *Gender*

Gender	No. of dentists
Male	7
Female	1
Not specified	2
Total	10

Respondents were predominantly male (70%). Only 1 of the 10 respondents who returned the questionnaire identified as female, and two respondents did not answer the question.

Finally, Table 6.8 presents the specialities of each dentist.

Table 6. 8: *Dentists' Speciality*

Specialty	No. of dentists
General practitioner	1
Prosthodontics	2
Prosthodontics and special care dentistry	1
Restorative dentistry	2
Periodontics	1
Gerodontic	1
Endodontics	1
Not specified	1
Total	10

The table indicates the specialities of the dentists who took part in the study. As these tables convey, the sample were mostly older male dentists and included a wide range of specialities.

Content-validity Index:

The CVI was calculated for each item in the tool. If an item scored lower than .8 in 'relevance' or in 'representativeness of the construct', it was excluded (Lynn, 1986, Davis, 1992). As the 'ease of response' was deemed more of a technical question than an essential part of content validity assessment (Polit and Beck, 2006), items were not deleted if they scored less than .8. 'Ease of response' was still included because it was considered an important aspect to assess and could help in identifying items that may need revision in how they were worded and presented. In the future, a manual could be developed to explain each of these items in detail and to provide a clinical example of each item for reference.

Based on the analysis, which is discussed in detail later, 7 out of the 13 items received a score lower than .8 in either 'relevance' or 'representativeness of the construct'.

The following table shows the four CVI scores for each item, along with an indicator of acceptability: green if acceptable and red if not acceptable. This table

below displays the scoring for each item in the tool on the following four criteria: relevance, clarity, representativeness of the construct and ease of response. The highest score is 1 and the lowest 0. The score was calculated in the following way: If a respondent selects a 3 or 4, it is worth 1 point; if the respondent selects a 2 or 1, then it is classed as a 0 (Polit et al., 2007). This was done for each item by calculating the scores for the item as given by all of the experts and dividing this number by the number of respondents, which was 10 in this study. Table 6.8 offers a practical example of this scoring. For example, if four experts rated the scale on a four-point scale based on 'relevance', then it would be as follows: If the first expert gave the item a 3 out of 4, this would be calculated as 1, and if the second expert gave it a 2, that would be calculated as 0; the third gave it 4, so that is worth 1, and the fourth gave it a 1, worth 0. Added together, these numbers are $1+0+1+0=2$. Next, the 2 is divided by the number of experts, which is 4, resulting in .5. For this study, as apparent from the table, none of the items scored less than .8 in clarity. A practical example of how this was calculated for item 1 is included in the table below:

Table 6. 9: CVI calculation for item 1

	Item 1			
Respondent	Relevance	Clarity	Representativeness of the construct	Ease of response
1	4	3	4	3
2	4	4	4	4
3	4	4	4	3
4	3	3	3	3
5	4	4	4	3
6	4	3	4	3
7	4	3	3	3
8	4	4	4	4
9	4	1	1	1
10	4	3	3	3
How many selected 3	1	5	3	7
How many selected 4	9	4	6	2
Sum of the 3s and 4s	10	9	9	9
Sum of 3s and 4s divided by 10	1.00	0.90	0.90	0.90

The next table presents a list of all the tool items and all the scores obtained across all the CVI tests that were administered. Items with a score of .60 or .70 in 'relevance' or 'representativeness of the construct' were deleted.

Table 6. 10: CVI scores for the self-reflection tool

Item	Relevance	Clarity	Representativeness of the construct	Ease of response	Acceptability overall
This patient is unable to make decisions about treatment him- or herself	1.00	.90	.90	.90	Accepted
This patient asked me to make all the decisions about treatment on his or her behalf	.60	.80	.80	.70	<i>Rejected</i>
This patient wishes to make decisions jointly with me about treatment	.90	.90	.90	.80	Accepted
This patient wishes to make decisions about treatment him- or herself	.70	.90	.90	.60	<i>Rejected</i>
I gave the patient information on the option that is clinically most suitable	.60	.80	.80	.60	<i>Rejected</i>
I gave the patient information on two or three options that may be suitable	.70	.80	.90	.70	<i>Rejected</i>
I gave the patient information on all the different options available	.90	1.00	.90	.80	Accepted
I advised the patient on what would be the best option from a clinical perspective	.60	.90	.70	.60	<i>Rejected</i>
I discussed with the patient the advantages and disadvantages of the best two or three options	.60	.90	.70	.70	<i>Rejected</i>

I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option	1.00	.90	1.00	.80	Accepted
I made the final decision on how best to deal with the problem	.70	.90	.70	.90	<i>Rejected</i>
The patient and I both contributed to the final decision on how best to deal with the problem	.90	.90	.90	.70	Accepted
The patient made the final decision how best to deal with the problem	.90	.90	.90	.70	Accepted

As seen in the table above, the items deleted after the calculation of the CVI were as follows:

1. *'This patient asked me to make all the decisions about treatment on his or her behalf'*, because it scored .60 on relevance
2. *'This patient wishes to make decisions about treatment him- or herself'*, because it scored .70 on relevance
3. *'I gave the patient information on the option that is clinically most suitable'*, because it scored .60 on relevance
4. *'I gave the patient information on two or three options that may be suitable'*. This item scored .70 on relevance
5. *'I advised the patient on the best option from a clinical perspective'*, because it scored .60 in relevance and .70 on representativeness of the construct
6. *'I discussed with the patient the advantages and disadvantages of the best two or three options'*, because this item scored .60 on relevance and .70 on representativeness of the construct
7. *'I made the final decision on how best to deal with the problem'*, because this item scored .70 in relevance and .70 on representativeness of the construct

The revised tool ultimately featured six items, which was helpful in terms of brevity (see Table 6.11)

Table 6. 11: *The final version of the tool.*

Select the statement that most reflects what happened during the visit
Patient:
a. This patient is unable to make decisions about treatment him- or herself
b. This patient wishes to make decisions jointly with me about treatment
Information:
a. I gave the patient information on all the different options available
Tools:

a. I discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option

Choice:

a. The patient and I both contributed to the final decision

b. The patient made the final decision

Finally, for the last question asking dentists, '*Do you think this checklist can assess the concept of PCC as it is defined in the hierarchy?*', 8 of the 10 dentists who completed the content validity assessment answered affirmatively. One of the respondents answered negatively, and one did not answer the question.

6.7.5 Summary

This section assessed the content validity of the developed tool and presented the results of this assessment. Assessing the content validity of a newly developed tool is an important step to carry out to examine whether the items generated or selected for inclusion in the tool covered the concept it intended to assess and its different dimensions (Rubio et al., 2003). The result of this assessment led to a reduction in the number of items in the tool from 13 items to 6 items. This reduction worked in favour of dentists who wanted a short tool that would not require much time to complete. This reduction further enforced that designing a PCC self-reflection tool that aims to improve dentists' awareness of the concept of PCC and its practice rather than a PCC self-assessment tool might be a better plan than attempting to measure a concept of which there is no general awareness.

With regard to the items that did not receive a high enough score for inclusion (.80), it seemed that dentists did not approve of the inclusion of any items that alluded to them not giving choices or information to the patient. For example, all of the items based on levels 1 and 2 from the hierarchy were found to be irrelevant and, in most cases, difficult to answer. This returns this work to the original views

expressed in the interviews in Chapter 4, which evidenced that practicing dentists felt that they always practice at generally higher levels of the PCC hierarchy, since these views seem to have influenced their ratings of the tool here and in many respects, this verification strengthens the researcher's original view expressed when analysing these interviews.

Although this reduction in the number of items and the removal of these options might be considered a weakness, it was viewed more as a strength since it meant that dentists would not feel defensive about answering items that they do not feel comfortable answering and which might result in their refusal to use the tool or to answer it incorrectly, as found by some previously developed tools for users that did not like the tool for one reason or another (Keszei et al., 2010). Therefore, developing a tool that appeals to the users and reflects the meaning of the concept for them is important in order for the tool to be used (Larsen et al., 1979).

6.8 Section 5: Test-retest reliability and face validity

6.8.1 Importance

After developing the self-reflection tool for dentists and assessing its content validity, the next step was to assess its reliability. Assessing the reliability of a newly developed tool is crucial to ensure that the developed tool generates a score that is representative of the actual score of the phenomenon being assessed (DeVon et al., 2007). Furthermore, the score should not change unless there is an actual change in the situation being assessed; otherwise, it should reflect the same score at any later date (DeVellis, 2016). There are number of definitions proposed for reliability and how to assess it, and many tests are consequently available.

Some of the more common reliability tests include using a Kappa coefficient, which measures the percentage agreement and takes into account the possibility of chance agreement. There is also 'split-half reliability', in which the scores of one half are compared to the scores of the other half; the results of the two halves

are expected to have a high correlation (Streiner et al., 2014). The reliability test should be selected after careful consideration of the type of tool that has been developed and which type of error might undermine the tool. Two assumptions underline most types of reliability assessments: an accurate measure should generate the same result when repeated, or the same result should be generated by different observers or by a test of a parallel form of the tool.

In addition to assessing the reliability of the developed tool, the face validity of the tool as a whole was also evaluated. Although there is no agreement in the literature as to whether face validity is important or necessary (Hardesty and Bearden, 2004, Royal, 2016), the view adopted here is that face validity assessment is important when measuring a concept that is potentially difficult to define, especially for a scale with new items (Hardesty and Bearden, 2004). The face validity assessment is a valuable but not sufficient test for a newly developed tool (Hardesty and Bearden, 2004). It is defined as 'the extent to which an instrument "looks like" it measures what it is intended to measure' (pg. 111, Nunnally, 1978), and this is commonly assessed by the potential users of the tool (Nunnally, 1978). The importance of this type of assessment lies in examining how the tool looks to potential users after its development and after its content validity has been assessed. It further demonstrates whether the move from item generation to an actual tool was successful (Nunnally, 1978).

6.8.2 a How test-retest reliability is carried out in practice

In this study, test-retest reliability was used because the study's objective is to assess whether the scale generates the same score when used by the same person twice; there is no interest in assessing differences in scores between multiple observers, for example the depression score of one patient given by three psychologists. To determine the reliability of this type of scale, it is better to calculate the inter-rater or inter-observer agreement (Teddle and Tashakkori, 2009). A reliability test should be chosen after considering which type of scale is being assessed.

This study aims to assess the test-retest reliability of the developed tool. There is criticism of this type of assessment present in the literature. First, the difference in the scoring of the first and second test might be a result of a real difference that occurred because of an actual change in the phenomenon being measured. This issue is particularly relevant if the time interval between the test and retest is long (Allen and Yen, 2001). For example, an assessment of a patient's quality of life after he or she has been discharged might report significant differences compared to the same assessment repeated six months later. The issue here is that these differences can be attributed to a real change in the patient rather than indicating any problem with the test itself. This issue is not relevant to this study, as the students were assessing the performance of a dentist in a video clip of the same consultation twice. The survey does not measure health, techniques or any other aspect that could improve or worsen with time.

The second criticism regards fatigue effects, which usually result from being asked repeatedly to complete different surveys (Porter et al., 2004). This is not relevant to this study because the tool is very short; also, allowing a minimum of 10 days between the test and retest should eliminate any fatigue resulting from taking part in the study. A 10-day interval between the two tests ensured that it was unlikely for students to remember their answers from the first survey (Streiner et al., 2014), which relates to the third criticism of this type of reliability assessment. The results of this type of reliability might be affected if respondents to a survey become sensitised to the issue after filling out the survey, which can cause respondents to think more actively about the issue and change how they answer the questions (Streiner et al., 2014).

Overall, the test-retest reliability reported here was deemed to have considered all of these issues: actual change in the participants, fatigue effects and sensitisation.

6.8.2 b How face validity is carried out in practice

Commonly, the potential users of the tool are those who are asked to participate in the assessment, in which the tool is presented to them and they are asked to offer their thoughts on whether or not this tool ‘on face value’ reflects the concept being assessed (Sato and Ikeda, 2015, Davies, 1999). In some cases, experts are asked instead of the intended users (Hardesty and Bearden, 2004).

This is not a statistical test (Bannigan and Watson, 2009); instead the validation can be done simply by presenting the tool to intended users and asking them whether the tool measures the concept (Davies, 1999).

6.8.3 Procedure

Participants:

Dental students in their third, fourth, or fifth year of study at the Dental Institute at King’s College London were the sample selected for this study. Although this work appears towards the end of the thesis, the chronology of this part of the study coincided with that of the MCCS survey that was reported in Chapter 5.

The student sample who answered the MCCS survey also took part in this tool validation study, which was run in parallel to the communication skills study.

The procedure of the student recruitment is exactly as presented in Chapter 5. To reiterate, a global email was sent to all undergraduate students at the Dental Institute at King’s College London. The email was addressed to third-, fourth-, and fifth-year students and provided a brief description of the study and the incentives for taking part. It also noted the researcher’s email and asked students to email her if they were interested in taking part and to receive more information and the link to the survey.

For the retest, the same procedure was followed, but the email sent to students specified that only those who had participated in the first study could take part in this second survey. A total of 42 students completed the retest, but after excluding

students who completed the test or retest in less than 11 minutes and 33 seconds as well as those who completed the retest but had not completed the test, the total number of completed questionnaires that satisfied all of these criteria was 25.

Materials:

The students were asked to watch a YouTube clip that depicted a dental consultation and was around 11 minutes in length (the detailed description of the clip is provided in Chapter 5).

Following in table 6.12 is the tool as presented in the questionnaire sent to students. There was a slight change in the order of the items from the final version for the sake of ease and clarity of the survey.

The changes were only in the order, so the items that have two options were listed earlier and the items with one option were listed at the end.

Table 6. 12: *The tool as presented to students in the survey (both test-retest reliability and criterion validity)*

For the next 2 items, we would like you to select one of the 2 statements (a or b) that you think best fitted the consultation.
Item 1: <ul style="list-style-type: none">a. This patient is unable to make decisions about treatment him- or herselfb. This patient wishes to make decisions jointly with the dentist about treatment
Item 2: <ul style="list-style-type: none">a. The patient and the dentist both contributed to the final decisionb. The patient made the final decision
For the next 2 items, we would like you to select only the statements that you think applied to the consultation. You may decide that both, either, or neither applied.

Item 3:

- a. The dentist gave the patient information on all the different options available**

Item 4:

- a. The dentist discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option**

Design:

Since this a test-retest reliability study, the students responded to the same survey twice. The retest part of the survey was open to students 10 days after the closing of the first part of the survey. A 2- to 14-day interval is suggested as the norm (Streiner et al., 2014).

Procedure:

The survey was developed and distributed using Qualtrics software. Ten days after the first survey, another global email was sent to the same sample of undergraduate students in the Dental Institute. The email was addressed to students who took part in the first study. Students interested in taking part were asked to email the researcher for more information and for the link to the survey. A £5 Amazon voucher was given as an incentive to students completing this questionnaire, resulting in a total of £15 for students who took part in both the first test and the retest reliability survey. The same filtering process was applied: Any students who completed the survey in less time than it takes to watch the clip were excluded.

Finally, a question that asked students what this tool measured was added to the survey in order to assess face validity.

Making this an open-ended question was considered but was discarded later because the number of concepts available that address the issue of patientdentist

communication is immense, and asking students to write about one of them would make the information difficult for both the dental students and the PhD researcher to quantify. For students who had not studied the concepts of communication in the literature, identifying one might have proved too challenging and demanded considerable effort in recalling the various courses and materials studied and then choosing a concept they thought would most likely match the questions asked. A student might ultimately select whatever came to his or her mind first. For the PhD researcher, it would be difficult to quantify the answers, especially if each student specified a different answer. Therefore, a list was added to limit the number of options that students might present and to help unify and measure the results. To ensure that it was not too easy, similar theories in patient-dentist communication were selected.

Students were given the following list of options and were asked to select the correct answer.

This checklist seems to measure:

- *The locus of control theory*
- *Patient-centred care*
- *The power/interpersonal influence*
- *Patient-dentist cooperation*

Ethics:

Ethical approval to conduct this study was granted by King's College London Research Ethics committee. Reference number: LRS-15/16-2826 (Appendix.7).

6.8.4 Findings

In this section, the first part presents general demographic questions and the second part includes the results of the test-retest. The section concludes with the results of the face validity test.

Sample demographics- of the retest group:

In this study, 17 (68%) of the respondents were female and 8 (32%) were male. The majority of the respondents were British, namely 21 (84%), while 2 were Malaysian (8%), 1 was Pakistani (4%) and 1 was Trinidadian (4%). The majority described themselves as Asian, namely 14 (56%), while 5 were White (20%), 3 were Chinese (12%), 1 was Black (4%), 1 was Indo-Caribbean (4%) and 1 was of mixed background (4%).

Test-retest reliability results:

This section presents the results of the test-retest reliability assessment. For each item, a table notes the agreement between the first test and the second. The agreement was calculated using cross-tabulation in IBM SPSS.

Item 1: Patient

The first item is the 'Patient' section, which had two options:

1. *This patient was unable to make decisions about treatment himself or herself*
2. *This patient wishes to make decisions jointly with the dentist about treatment*

The following table specifies the agreement for this item between Times 1 and 2

Table 6. 13: *Test-retest reliability agreement for item 1*

Item 1	Item 1		Total
	1	2	
1	3 (how many selected 1 both times)	6 (how many selected 2 the second time only)	9
2	2 (how many selected 1 the second time only)	14 (how many selected 2 both times)	16
Total	5	20	25

Calculating the agreement for item 1 can be broken down as follows: 3 (the number of students who selected option 1 both times) + 14 (the number of students who selected option 2 both times) =17, divided by 25, which is the total number of students. The result showed that there was a 68% agreement between the first and the second tests.

Item 2: Choice

The second item, 'Choice', has two options, and students were asked to select one of them.

1. *The patient and the dentist both contributed to the final decision*
2. *The patient made the final decision*

The table below shows the agreement for the second item.

Table 6. 14: *Test-retest reliability agreement for item 2*

Item 2	Item 2		Total
	1	2	
1	24 (how many selected 1 both times)	1 (how many selected 2 the second time only)	25
2	0 (how many selected 1 the second time only)	0 (how many selected 2 both times)	0
Total	24	1	25

This item reported a 96% agreement in the test-retest. All students had the same answer to the question except for one, who selected 1 the first time and 2 the second time.

Item 3: Information

The third item in the tool, 'Information', has only one option, and students could either check the option if they agreed with it or not check it if they did not think the item reflected the events of the consultation. Number 2 is equivalent to 'yes' and 1 is 'not applicable' (N/A).

1. *The dentist gave the patient information on all the different options available*

The following table indicates the agreement between the test-retest for the third item in the tool.

Table 6. 15: *Test-retest reliability agreement for item 3*

Item 3	Item 3		Total
	1	2	
1	4	3 (how many selected 2 the second time only)	7
2	4 (how many selected 1 the second time only)	14 (how many selected 2 both times)	18
Total	8	17	25

Calculating the test-retest agreement for the third item in the tool revealed a 72% agreement; 18 out of the 25 who completed the questionnaire selected the same choice in the test-retest, with 14 choosing 2 in the test-retest and 4 selecting 1 twice.

Item 4: Tools

The third item, 'Tools', asked students to check the available option if it applies to the consultation and leave it if it does not apply to the consultation. The 1 is equivalent to 'N/A', and the 2 is equivalent to 'yes'.

- 1. The dentist discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option*

The table below shows the agreement with regard to the 'Tools' item.

Table 6. 16: *Test-retest reliability agreement for item 4*

Item 4	Item 4		Total
	1	2	
1	19 (how many selected 1 both times)	2 (how many selected 2 the second time only)	21
2	3 (how many selected 1 the second time only)	1 (how many selected 2 both times)	4
Total	22	3	25

Calculating the agreement between the two scores revealed an 80% agreement for the test-retest. Twenty out of the 25 students who completed the questionnaire did not change their answers, with the majority of the students (19) selecting 1 both times.

It would appear that the tool was highly reliable, with the exception of item 1, which was only moderately reliable.

The face validity results:

Fourteen of the 25 respondents who completed the questionnaire answered this question by saying that the tool measured the concept of PCC. This represents 56% of the students who took part in this study.

6.8.5 Conclusion

This section first briefly discusses the face validity finding followed by a presentation of the test-retest reliability results.

More than half of the respondents selected PCC as the concept being assessed by this tool. This percentage was modest, so it was slightly better than chance. This moderate face validity could be interpreted as an advantage but also as a disadvantage; it could be said that a tool should be low in face validity to prevent

respondents from guessing its focus and modifying their responses in a socially desirable manner. Alternately, it could be argued that an especially low face validity conveys that the measure is so confusing to respondents that they do not know how to interpret it. So, extremely high or extremely low face validity could both be disadvantageous.

In this case, a moderate 56% of the sample suggested that the tool was about PCC. This is neither high nor low, and given the difficulty surrounding defining the concept of PCC, it is not surprising. As face validity cannot be assessed through a statistical test, it is rather a subjective judgment, and in this context it has been taken as such (DeVon et al., 2007).

In terms of test-retest reliability, the results indicate the percentage agreement between the test and retest. All four items scored between 'substantial' and 'almost perfect' agreement. The lowest reliability was seen for item 1, which scored 68% (of the recommended 70% score (Fink and Litwin, 1995) in agreement. This item was written to assess the dentist's perceptions of patient interest and his or her ability to be part of the decision-making process. It had two questions under it, of which the dentist selected one that applied to the patient in this consultation. This relatively low score, compared to the other items, could be a result of the subjectivity of this item and the difficulty in correctly assessing patient interest. The fact that the respondents were rating a third party (the dentist in the clip) is also likely to have impacted the reliability of this scale. This item is still considered valuable, based on dentists' comments, to assess patients' interests in being involved in the consultations. It would be intriguing to reevaluate reliability using a real-life scenario in which the dentist is rating themselves in order to explore whether reliability improves for this item.

Item 2, 'Choice', had two options to select from: *'the patient and the dentist both contributed to the final decision'* or *'the patient made the final decision'*. It received a near-perfect agreement score (96%), and all students except one gave the same answer in both tests. Item 3, 'Information', has one question under it, *'the*

dentist gave the patient information on all the different options available', which scored 72%. Item 4, 'Tools', also has one question, *'the dentist discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option'*, and it has one option to check if applied to the consultation, which scored 80% in agreement.

In conclusion, assessing the reliability of any developed tool is essential and can result in potential users having a greater confidence in the developed tool. There are many types of tests that could be used to assess the reliability of any developed tool. Choosing which test to use requires considerable deliberation and the consideration of a number of factors. The test-retest analysis conducted on this tool evidences that the items in the tool are reliable, with agreement scores ranging from 'substantial' to 'almost perfect'. The face validity of the tool was deemed acceptable.

6.9 Section 6: Students' assessment of the dentist performance (as depicted in the clip) using the PCC self-reflection tool

6.9.1 Importance

In an ideal world, the newly developed tool would be compared against other similar tools in order to ascertain whether the two measure a similar construct. This, however, was not possible in this case for the following reasons.

First, although there are a number of PCC measures that it could have been compared against, such comparison normally requires a numerical score from both tools, and the two scores are then correlated; for example, where a new intelligence test was to be validated against an existing one, scores from both would be correlated, and one would expect a high correlation to be evident if the two tests measured the same construct. This was not possible in this case, as the tool that was developed here did not yield a final score.

Second, there is currently no 'gold standard' tool with which to compare a newly developed PCC tool (Gold et al., 2010).

For these reasons, other means of establishing the practical application of this tool were researched. A method known as 'panel consensus' (Rutjes et al., 2007) was adopted. This method can be seen as the construction of a reference standard using the developed measure when there is a lack of 'gold standard', or when it is difficult to correct the imperfection in the current 'gold standard' (Reitsma et al., 2009), against which the performance of a sample of respondents is then compared. This step is usually carried out to assess the accuracy of a developed tool (Reitsma et al., 2009). This test is thus similar to a standard criterion validity test.

6.9.2 How criterion validity and in particular panel consensus are carried out in practice:

Criterion validity is defined as a 'measure of survey accuracy that involves comparing the tool or measure to other tests that assess the same criteria (Fink and Litwin, 1995). In most studies, the criterion validity, and in particular the concurrent validity, of a developed tool is assessed using the method mentioned in the previous definition: by comparing the results collected by the newly developed tool to the results collected using a validated tool (gold standard). The test does not necessarily have to be a scale or a tool. The concurrent validity can be assessed by comparing the result collected by a new tool with the result collected by another 'gold standard' measure, for example comparing the results from a quality of life questionnaire with an actual physical assessment of the patient done by a HCP.

As no 'gold standard' measure can be used in this case, a panel consensus was employed to develop a reference standard. This method can be used if there is no 'gold standard' available with which to compare the results from a newly developed test (Rutjes et al., 2007).

This method is commonly used to assess newly developed diagnostic tests in which e.g. a group of doctors can diagnose a patient and their agreed-upon diagnosis is then used as the reference to assess the accuracy of the developed

test (Reitsma et al., 2009). The underlying concept is that the experts can be used as a reference in the absence of a reference standard test (Reitsma et al., 2009).

6.9.3 Procedure

Two researchers (the PhD student and one of her supervisors [KA]) watched the clip and jointly assessed the dentist using the tool. The researchers' answers were used as panel consensus, and the students' answers were compared to them.

Student data had been collected through the earlier test-retest reliability assessment.

As discussed earlier, the reference standard here was the two researchers' answers, who watched the clip together and then answered the four questions (see the next page). The researchers deemed that the 'right' answers to assess the consultation using the newly developed tool were as noted in the table below:

Table 6. 17: *Panel answers taken as the 'correct' assessment of the consultation clip, highlighted blue*

For the next 2 items, we would like you to select one of the 2 statements (a or b) that you think best fitted the consultation.	
Item 1:	
a. This patient is unable to make decisions about treatment him- or herself	
b. This patient wishes to make decisions jointly with the dentist about treatment	
Item 2:	
a. The patient and the dentist both contributed to the final decision	
b. The patient made the final decision	

For the next 2 items, we would like you to select only the statements that you think applied to the consultation. You may decide that both, either, or neither applied.

Item 3:

a. The dentist gave the patient information on all the different options available - **neither**

Item 4:

a. The dentist discussed with the patient the advantages and disadvantages of all the various options for the condition, including the no-treatment option - **neither**

For item 1, they selected b; for item 2, they selected a; for item 3, they selected 'not applicable' by not ticking the statement; and for item 4, they also selected 'not applicable'. This method of assessing the validity of the test, although unconventional, was deemed appropriate in view of the lack of other comparable tests or measures and was seen to fit under the general definition of criterion validity.

6.9.4 Findings

The table below displays the number of students who answered the questions about the consultation the same way as the panel of two researchers.

Table 6. 18: *Number of students who used the tool to rate the consultation in the same way as the researcher panel*

Item	How many selected the correct answer
Item 1	41 (73.2%)
Item 2	55 (98.2%)
Item 3	19 (33.9%)
Item 4	45 (80.4%)

As the table indicates, most students selected the correct answer for items 1, 2 and 4. The exception was item 3, '*The dentist gave the patient information on all the different options available*', with only 33.9% of the students answering this question correctly. The correct answer was 'no', or in the way this item was presented in the questionnaire, students should not have ticked this statement, indicating that the dentist had not carried this out in the consultation

6.9.5 Conclusion

In general, dental students were able to accurately use the newly developed tool to assess a dentist's performance during a visit. The only item the students had trouble answering correctly was the third item: '*The dentist gave the patient information on all the different options available*'. One possible explanation for this is that students might have assumed that the dentist, who had given the patient an option that seemed most suitable, had by definition given all options the patient needed. This finding goes back to the heart of PCC in dentistry and the difficulties inherent in how much information and choice patients are given. As the dentists interviewed in Study 1 explained, and has previous work has demonstrated (Asimakopoulou et al., 2014, Scambler et al., 2014), few patients want or are given all treatment options. To do so would potentially confuse the patient, risk dentist autonomy or risk the patient making a suboptimal choice.

In conclusion, these assessments demonstrate that this newly developed tool is a valid and reliable short tool. Further validity assessments are needed to examine the applicability of this tool in different settings as well as to assess its validity among dentists with different specialities. This validation part of the thesis has some limitations.

Ideally, this tool validation would have been carried out with practicing dentists by asking them to use this tool to assess their own performances after a visit. Due to time and budget constraints, it was decided to conduct this study using a sample similar to the intended users and asking them to assess a video clip rather

than an actual consultation. The decision to use a video clip rather than a consultation was also made because of time and ethical constraints. Although not ideal, it provided data regarding whether this tool can produce accurate results when used by third-, fourth- and fifth-year dental students.

Finally, although practical, using students to rate a third-party consultation might have suffered from low ecological validity and, as such, these findings need to be replicated with a 'real-life' consultation.

Before concluding this chapter, a figure linking the three studies together is shown below. This figure describes the different phases of this mixed method study and how the phases are all linked together. Figure 6.2 here shows a visual model of the exploratory sequential mixed method design used in this study. This visual model was adopted with slight modifications from Ivankova et al., (2006). However, it should be noted that in Ivankova et al., (2006) study, this model was used to describe an explanatory sequential design. Further, this figure differs from the one in Ivankova et al., (2006) paper in that the integration step was removed from the visual model shown here. The removal of this step was done as a result of this thesis adopting a mixed method approach in which the main purpose was for the qualitative phase to inform the quantitative phase. Integration of the two methods was not the aim and therefore the integration step was not included in this figure.

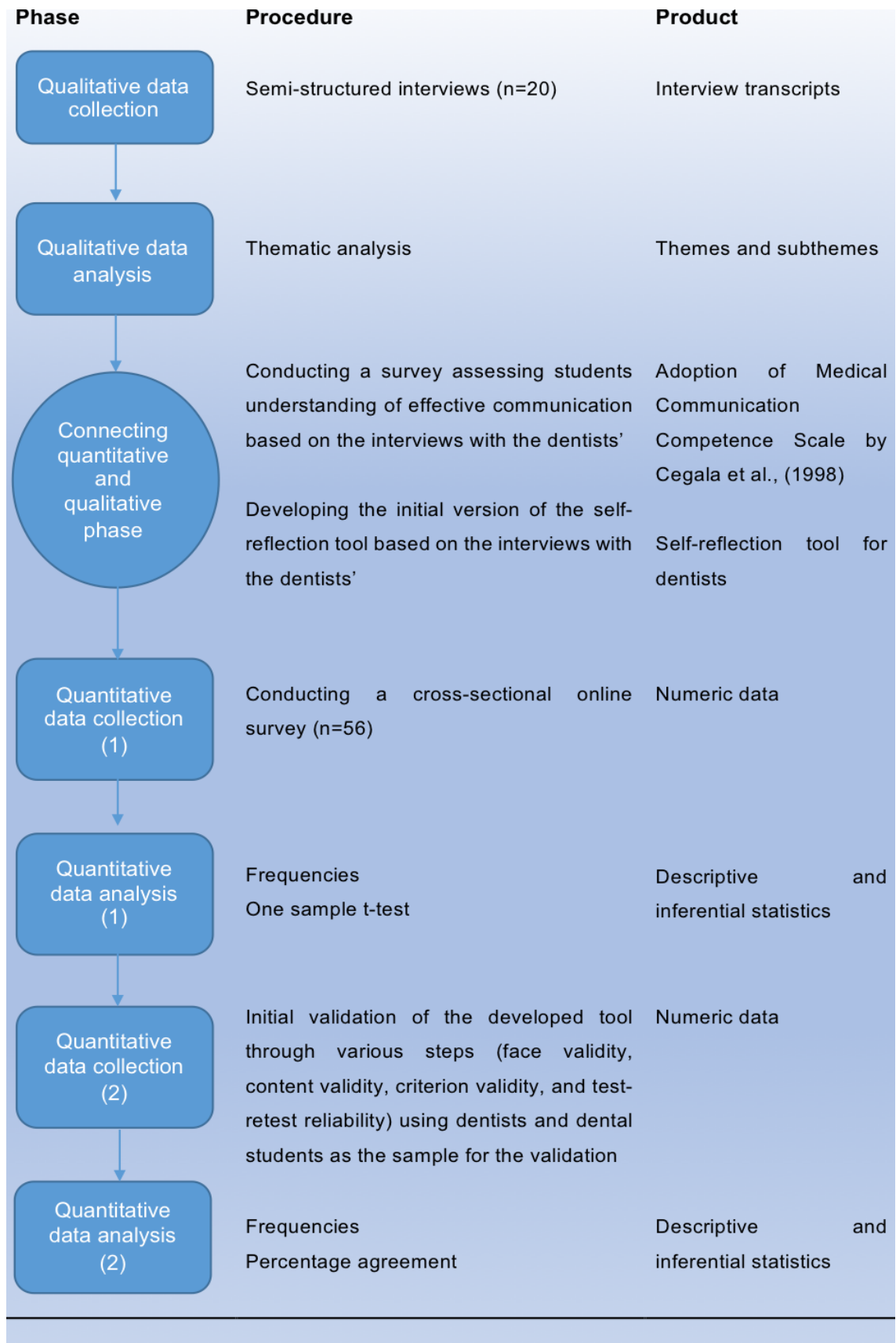


Figure 6. 2: Development of Self-reflection Tool for Dentists: Sequential Exploratory Design (using Ivankova et al., (2006) as a guideline)

6.10 Chapter conclusion

This chapter has discussed the steps used to develop a short self-reflection tool for dentists and reported on the initial validation of this tool. The main points of this chapter are summarised as follow:

- The tool was developed initially as a PCC measurement tool, with 13 items divided into four sections: patient, information, tools, and choice
- Consideration of the literature review, the dentists' preferences and the result of the content validity assessment led to a decision to test this tool as a self-reflection tool rather than as a self-assessment tool
- The content, face, criterion validity and test-retest reliability as well as a pre-testing of the items in the tool suggested that generally, for a tool measuring a concept that experienced dentists still find ambiguous, the tool is acceptable.

Chapter 7: Discussion and conclusion

7.1 Introduction

This thesis aims to address an important issue, namely the role of PCC in dental settings and the extent to which dentists might be interested in and benefit from becoming more aware of PCC in their everyday practice. Many organisations have advocated for the adoption of PCC, both for dentistry and for medical and nursing practices in general (IOM, 2001, NICE, 2012). However, detailed advice on how to practice PCC or a tool to aid such practice is not currently available to dental teams. Implementing the PCC approach in dental settings is a substantial project and needs to be studied from different angles, with attention to key players such as dentists, patients and policy makers.

This is particularly important since this topic is understudied in dentistry. For example, a considerable number of the studies found on PCC in dentistry turned out to be more about quality care in general or more attentive to patients without really studying PCC as it is defined in the literature. This issue was made more difficult by the fact that PCC has been poorly defined in dentistry, with only a few models that could be classified as models of PCC (Kulich et al., 2000, Loignon et al., 2010, Apelian et al., 2014).

In this study, the focus is dentists and how to aid them in becoming more patient-centred. Different methods could have been used to arrive at this goal, for example studying which incentives are most likely to encourage dentists to be more patient-centred. However, to follow that approach would have been premature, as the literature review suggested that there was not much clarity regarding the actual meaning of PCC in practice. Incentivising for the practice of a vague concept would not have been productive.

It was judged that for the purpose of this thesis, the development of a self-reflection tool for dentists based on a practical theoretical model of PCC would contribute to the currently limited understanding of PCC in dentistry. This was

seen as potentially helpful as a means of helping dentists become more patient-centred by having them reflect on their practices, with items to stimulate this reflection.

This final chapter starts by outlining the contribution of each study to research and concludes with limitations and suggestions for future research.

7.2 Contribution to knowledge of each individual study

This section discusses the contribution to the literature as well as how the literature has informed these studies. The section is divided into three subsections, each of which outlines a study contribution to knowledge, beginning with a restating of the objectives followed by a discussion of how answering these objectives contributes to the literature.

7.2.1 Dentists' Perceptions of a Hierarchy of Patient-Centred Care: Qualitative Study Using Semi-Structured Interviews

There were two main research questions in this study. The first one aimed to identify dentists' views on the Scambler and Asimakopoulou (2014) hierarchy of PCC. While the second question aimed to determine dentists' views on barriers to and facilitators of the adoption of the Scambler and Asimakopoulou (2014) hierarchy in a dental setting.

The interviews were conducted to obtain information on whether the Scambler and Asimakopoulou (2014) hierarchy would be suitable as a model of PCC that would turn later into a tool from dentists' perspectives. In addition, a discussion of the potential barriers and facilitators of this hierarchy in a dental setting was made. These interviews provided valuable information on how dentists view the PCC approach and which difficulties they anticipate facing when working to adopt it. Their views on this hierarchy as a model of PCC were mostly positive, with a preference for the third level from the hierarchy, in which information on the various options are given to the patient with a discussion of the advantages and disadvantages and in which both the dentist and the patient participate in the decision-making process. Dentists did not seem to favour a consultation in which

no option was given to the patient, and they also did not like a consultation in which the patient made the final decision himself or herself. Interviewed dentists also seemed to think this hierarchy and any tool developed based on it would be particularly useful for 'other dentists', namely those who recently started practicing and dental students. Previous research has indicated that HCPs were partial to shared decision-making, as opposed to a purely paternalistic approach or an approach in which patients are in full control of their care (Pollard et al., 2015, Pieterse et al., 2008, McGuire et al., 2005). The dentists who were interviewed revealed similar preferences, citing the fear of losing their autonomy as dentists and the fact that even patients themselves were unlikely to want that much control. In the dentists' view, the way the current health system is designed also makes the idea of patients in full control of their treatment highly difficult to implement. The addition to the literature here is that PCC for dentists needs to be balanced against issues of losing their autonomy by leaving the final choice to the patient without giving their suggestions and guiding the patient into selecting the 'best clinical' choice. Their loss of autonomy was not the only justification for their reluctance to leave the final choice in the hands of the patients; patients' preferences to ask the dentist for his or her opinion and thoughts was also cited as a reason for not finding practice at the fourth level of the hierarchy to be practical or applicable.

These interviews also demonstrated dentists' views of both their own levels of practice and those of their colleagues, and whether they thought they had communicated well with their patients. Dentists were similar to other HCPs, including medical and dental students (Walfish et al., 2012, Davis et al., 2006, Tuncer et al., 2015, Pisklakov et al., 2014), in how they regarded their performance as superior to that of other dentists. Most rated themselves at the higher levels of the hierarchy while suggesting other dentists were more likely to practice at the level below the one they had selected to reflect their own practice. Nevertheless, they acknowledged that other dentists, especially nowadays, were less likely to practice at the lowest level, at which basic information but no choice is given to the patient. This information is valuable because it reveals that

dentists, like others (Stewart et al., 2008, Davies and Macfarlane, 2010), tend to have self-enhancing views about their practices that are likely to impact how PCC is eventually practiced. The novelty of these findings is that new knowledge that dentists hold similar self-enhancing views about their own practice as other professionals.

In addition to providing some insights into dentists' views on the hierarchy of PCC and PCC as a concept, these interviews yielded detailed information on the possible barriers and facilitators to the adoption of PCC in general, and of this model in particular. These interviews added a wealth of information to the small and still-developing pool of PCC in dentistry studies (Mills et al., 2014, Scambler et al., 2016). In this study, it was seen that although dentists acknowledged that they themselves might act as a barrier to the adoption of PCC, most of the barriers they listed were patient- and context-related. Issues such as using technical language with patients were mentioned both by dentists and in the literature by other HCPs, but the number of barriers that could be traced back to dentists was minute compared to the barriers that could be traced back to patients or the healthcare system. Furthermore, the interviews evidenced that the barriers such as time constraints and lack of patient interest in involvement that dentists face when adopting a more PCC approach were the same as those suggested by other HCPs, such as doctors and nurses (West et al., 2005, Say and Thomson, 2003). Time in particular was an interesting barrier, as the results obtained here implied that money might buy patients more PCC care, as it buys more time with the dentist. This finding was particularly interesting in that dentists seem to be pulled into two opposite directions; the GDC expect them to be PCC, but the context in which they work some of the time (the NHS) seems to deny them the tool (time), which the dentists feel they need in order to be more PCC. Future work must address this paradox.

7.2.2 Examination of Dental Students' Assessment of Communication Skills Using a Medical Communication Competence Scale:

For the second study (the cross-sectional survey), the objective was to gauge dental students' awareness of good communication by having them assess the communication skills of a third party. This was done through an online survey in which students were asked to watch a video clip and then use the survey to score the dentist performance. The importance of evaluating dental students' abilities to assess the communication skills was related to the importance of communication skills to the adoption of PCC (Tongue et al., 2005). In order to adopt this model and other models of PCC, dentists would need to understand what constitutes good communication. To impart information and discuss options with patients, they need the ability to listen, give information in a clear understandable way and interpret patient verbal and non-verbal cues.

The main learning outcome from this study was to better understand the areas of communication that dental students might have some difficulty assessing and whether dental students have the ability to accurately assess another dentist. The study examined this by investigating whether the scores that dental students gave to a dentist-patient consultation were similar to the scores on his performance from an expert panel. The study found that the students tended to overrate most of the items in the communication scale, meaning they tended to rate the dentist's performance favourably even when the dentist did not perform well. Nevertheless, they seemed able to detect some of the areas in which communication was performed poorly. There were also variations in students' ability to recognise these areas, with some students faring better than others and rating the consultation similarly to how the researchers rated it.

This is the first study to use a MCCS with dental students, and the scale items covered a range of communication skill areas, including information giving, information verifying, information seeking and socioemotional talks. Therefore, the work covered both the technical and psychosocial aspects of a visit. The study indicated that dental students were generally able to detect good and bad

communication, but that the issue seemed to be that their standard against which they judged the skills of the dentist was lower than that of the experts. These were encouraging findings that suggest students could contribute to work to develop and potentially use a tool to support the practice of PCC.

7.2.3 Development and initial validation of a PCC self-reflection tool for dentists:

The final study comprised the development of a PCC self-reflection tool and the initial assessment of its validity and reliability. The objective was to develop and validate a PCC self-reflection tool that could be used by dentists to help them be more self-aware of how much choice and information they provide their patients. The result of this study was a tool that initially contained 13 items that were divided into four sections: patient, information, tools and choice. The patient section concerned patient preferences regarding their desired amount of involvement in a visit; it also covered whether they are able to make decisions regarding treatment. Patient preferences and mental capacity have sometimes been cited as reasons why HCPs cannot practice a more PCC approach (Gravel et al., 2006, Légaré and Thompson-Leduc, 2014).

Acknowledging this issue by adding the patient section might encourage dentists to think more actively about the preferences of each patient rather than assuming that the patient is not interested in being part of the decision-making process or receiving all the relevant information. The second section, information, listed choices for how much information on different options the dentist gave the patient. The tools section asked whether the dentist discussed the advantages and disadvantages of the various options with the patient. The final section, choice, questioned whether the patient or the dentist made the final decision, or if they both contributed to the decision.

This study assessed three types of validity: face validity, content validity and criterion validity. Although further validity tests still need to be carried out in the future, these types of validity tests were selected because they were the initial types of validity tests that must be conducted on a newly developed tool (Rattray and Jones, 2007). The results from the three validity tests that were conducted

evidence that the tool was acceptable. The number of the tool's items was reduced from 13 to 6 based on the results of these tests. By calculating the agreement between the two times, the test-retest reliability of the developed tool was also assessed. The result of this assessment revealed that the tool met reliability requirements.

The overall contribution of this thesis to knowledge

Before this work took place, dentists had not been consulted on the feasibility of their using a theory-driven PCC tool in practice. This work developed such a tool that was firmly based not just on previous literature on PCC but also on a practical model of PCC and how practising dentists view it. The tool was tested on student dentists and also benefitted from the experience of practising dentists in addition to formal reliability and validity tests. As such, the literature has now been enriched by a tool that might help dentists become more aware of PCC issues.

In developing the tool, it was necessary to explore the communication skills of dentistry students. The research has found that dentists appreciated the importance of good communication to practice PCC. The study that examined this (study 2) has reported that although dental students seemed to be assessing the communication skills of another dentist more positively than an expert panel, they were able to assess the general patterns of communication in similar ways as an expert panel.

7.3 Practice implications

7.3.1 Study 1: Dentists' Perceptions of a Hierarchy of Patient-Centred Care: Qualitative Study Using Semi-Structured Interviews

The semi-structured interviews provided insight into barriers and facilitators relating to the adoption of a PCC hierarchy in a dental setting, from practicing dentists' own perspectives. This information could be used to help policy-makers design a plan to facilitate the implementation of PCC or write guidelines for dentists on how to communicate with patients. As can be noted, one of the issues

with guidelines that call for more patient-centredness among dentists is that these guidelines provide information to the dentists on how to be patient-centred (NICE, 2012, Department of Health, 2010, GDC, 2013), yet the information is fragmented and scattered across a number of pages, so the dentist must progress through more than one web screen in order to get the whole picture. Additionally, most of these guidelines need further elaboration, particularly since the concept of PCC is still relatively new in dentistry (Apelian et al., 2014, Scambler et al., 2014) and most of the more detailed information refers dentists to the general guidelines for HCPs. Developing guidelines specifically for dentists and dental teams might not be needed, but this cannot be ascertained without studying the adoptability of the concept from the perspective of dentists.

Making use of the in-depth information that dentists provided in these interviews could be helpful in developing more detailed reference guidelines for dentists that describe the step-by-step adoption of PCC in dental settings. Then again, it could also justify the use of generic guidelines for HCPs. In addition, by gathering dentists' opinions and views on PCC and its barriers and facilitators in a dental setting, those guidelines could be more realistic and applicable in the context of dental settings.

7.3.2 Study 2: Examination of Dental Students' Assessment of Communication Skills Using a Medical Communication Competence Scale

Examining dental students' abilities to assess the communication competence of another dentist indicated areas in which dental students themselves might need help; if they gave a high rating to an item in which the dentist did not do well, it could mean they viewed this as an acceptable way of conducting a consultation. By highlighting these areas, educators can focus on them more directly, ensuring that these skills are taught as part of the curriculum and that students are given the opportunity to practice them and informed of the ideal way of practice in relation to these items. In addition, it could offer an idea of whether dental students can accurately assess their peers. This is an important skill that warrants

nurturing, especially since peer assessment is one of the commonly used assessment methods in dental settings (Henzi et al., 2006).

7.3.3 Study 3: Development and initial validation of a PCC self-reflection tool for dentists

Dentists could use the developed self-reflection tool themselves after each visit to determine how well they provided information and choice to patients. Considering that the final version of the tool consists of only six items, filling it in would not take much time, and with repeated use dentists might be able to reflect on their own performance without referring to the tool. The tool could also be used for research purposes in future studies, as dentists' performance could be followed up on by comparing their awareness across a number of visits or with different patients in order to identify any trends or special cases. This selfawareness tool was developed to be generic and not for a particular speciality. It was designed for use by dentists from different specialities, and the dentists who were involved in the development process reflected this, having come from a range of specialities including general practice. Finally, the importance of this tool is that it is the first English PCC tool developed for dentists based on a PCC model that advocates for giving information and choice as a measure of PCC. It should be noted that there are tools available for dentists and patients to assess different aspects of communication in a dental consultation (Wener et al., 2011, Theaker et al., 2000), but none of these tools was developed specifically in relation to PCC.

7.4 Limitations and future research

There are a number of limitations in this study, most of which were discussed in greater detail in the relevant study chapter. One of the most serious limitations of this thesis was the representativeness of the sample in the studies. Both dentists and dental students who were involved in the three studies were recruited from King's College London, which could affect the generalisability of the results to the

wider population. Although some of the dentists practiced in other settings, they were still linked to the college (as clinical teachers), so they may not be representative of the average dentist in a clinic. The topic guide that was written for this study could be used to conduct interviews with dentists practicing in other settings, including in general practice, and to compare their views with those reported here to identify divergences. This could contribute to an understanding of the effect of context and its influences on dentists' views and understandings of PCC. Moreover, it could identify any other barriers or facilitators that are specific to a particular setting. All this information could then be used to develop tailored plans to improve the adoption of a PCC process in different settings. The information that dentists provided could also assist other researchers in developing a PCC instrument for assessment that a third party or dentists themselves can employ as a measurement tool compared to the self-awareness tool developed in this study.

Finally, in addition to asking dentists, consulting patients about their understanding of the concept, whether they think their dentists are patientcentred and what they would like to see during a consultation could build a more comprehensive view of PCC and its applicability to dentistry; it could also help compare the barriers from dentists' perspectives to those from patients' perspectives to determine if there are any similarities or differences and to understand how these could affect the implementation of this approach. The view taken in this thesis was that involving patients would have been premature; however, given this work, future work should seek to do this.

As for the development and validation of the PCC self-reflection tool for dentists, due to the design of the tool, it was difficult to assess all types of validity. The tool started off as a measurement tool but, following feedback from its intended users, turned into more of a guide than an actual assessment tool. Because of a lack of numerical scores, the construct validity of the tool was not assessed, as no similar tool was found because of the lack of scoring and the lack of a tool with the same purpose.

Also, due to practical constraints, a dental student sample was used to assess the criterion validity and the test-retest reliability instead of dentists themselves.

Furthermore, the tool should ideally assess one's own performance rather than the performance of another dentist, but this was also difficult to evaluate, and dental students were asked to assess the performance of another dentist for the criterion validity and the test-retest reliability.

For future research, conducting think-aloud sessions with potential users could be helpful in obtaining more detailed feedback. This would include questions such as why they like a question and feel it should be included, which was an issue that was not examined in this thesis. This process could help evaluate the response process for the developed tool (Cook and Beckman, 2006). Even though a content validity assessment was performed, it was difficult to understand the reasoning and the justifications that dentists claimed when they rated an item as relevant or representative. It might also prove useful to ask a number of dentists to pilot the tool by having them fill it in after visits and then report back on how easy, difficult or beneficial it was for them.

Testing the tool's sensitivity with a particular speciality to identify necessary modifications to it and then incorporating them into the tool could help tailor the tool to specific dentists and cater to their particular needs based on the contexts in which they practice.

Developing guidelines to accompany the tool, which might include clinical examples for each item in the tool, could help dentists in comparing their own practice against the clinical example provided. These examples could also assist them by demonstrating how each level could be achieved in practice.

A RCT to assess whether using the tool does in fact make dentists more self-aware of PCC would be the next step in this programme of research. The work could be undertaken with dentists at different points in their careers and with different types of patients. Such work would assess the tool's ability to change practice in a clear, quantifiable format.

Finally, an electronic version of the tool could be developed and incorporated into electronic medical records in which dentists would need to complete the form as part of the visit for each patient. This information could be used to assess dentists' styles of communication, whether they are more compatible with a particular type of patient over others and whether they practice in a way that follows the guidelines suggested by NICE (2012).

In summary, these are the main recommendations for future work:

- Conducting semi-structured interviews with dentists from different areas and practices to explore and identify any issues particular to them.
- Conducting semi-structured interviews with patients to explore their views and understandings of the concept of PCC and what this concept means to them.
- Exploring patients' preferences in relation to information to be given and participation in decision-making.
- Further, it might be useful to explore patients' preferences taking into consideration the type of dental issues they came for and the settings where they are being treated.
- Development of an e-version of the tool for routine usage by dentists and dental students.
- Assessing the feasibility of using the e-version of the tool for teaching and evaluation purposes.
- Inclusion of the developed self-reflection tool as part of CPD for dentists.

7.5 Conclusion

The overall aim of this thesis has been the development and initial validation of a PCC tool for dentists. The goal of this tool is to serve as one of the many steps towards achieving a more patient-centred culture in dental settings. Patients' rights and the call for a greater adoption of this approach by many governing organisations were the main two motivations for this research. Adding in the many positive outcomes that have resulted from implementing this approach (Apelian et al., 2014, Bertakis and Azari, 2011a, Rathert et al., 2013), it was felt that this was a crucial time for dentistry to advance to the level of other medical fields by examining the issues of implementation related to the PCC approach and its definition. The main findings of the three studies in this thesis could be summarised as follows:

- The interviewed dentists understood the importance of a model of PCC for dentistry and for developing a tool based on this model. As in previous research, they identified barriers that they felt would hinder their adoption of PCC. The novel finding here was an unrealistic optimistic belief about their own ability to deliver PCC. The thesis has added to our understanding of the dentist perspective on PCC and has laid the foundations for future research with patients. Patients' understanding or expectation of PCC in dentistry needs to be examined next to establish where dentists' and patients' views of PCC converge.
- Dental students can generally differentiate between different aspects of communication, but their assessment of quality of dentist-patient communication shows room for improvement. Communication skills training for dental students in the curriculum should consider not just the different functions of communication but ways to raise students' understanding of the quality of such communication.
- A brief PCC self-reflection tool for dentists was developed based on dentists' views and a practical model of PCC. The test-retest reliability, content validity, face validity and criterion validity of the tool were assessed and revealed that the tool was acceptable in its final form. Future research might develop an e-

version of the tool for routine use by dentists and dental students. Such a tool could be reasonably included in dentists' Continuing Professional Development (CPD).

In conclusion, this thesis addressed an important issue, patients are being encouraged to actively participate in the consultation (NICE, 2012) and for that to happen it is essential that dentists have the skills to enable patients to participate in the consultation. Tying this in with personalised medicine and the need to ensure care meets the needs of, and is acceptable to, the patient. Particularly important as we move from acute to long term conditions. All these can be addressed through encouraging the practice of PCC which promotes not only good quality care, trust, and the use of a holistic approach when treating the patient but also the importance of information and choice. This tool is one way to aid this process.

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Appendices

Appendix 1: Search strategy

This research involved a narrative review of the literature on PCC. In this thesis, the aim is to identify studies on the concept of PCC in general and in dentistry in particular. This includes how the concept has been defined and measured as well as which patient outcomes result from adopting this approach.

The following databases were searched: Medline, PsycINFO, Google Scholar and Web of Science. The only limit concerned language, as only studies in English were included due to difficulty translating those in other languages. Some of the MeSh terms used include PCC, patient-doctor communication, biopsychosocial or biopsychosocial approach, treatment compliance or adherence, decision-making or shared decision-making, and patient satisfaction. This strategy located key papers that define and operationalise the concept of PCC in medicine. It became apparent upon initial examination of the medical literature that there are many studies that each focus on a particular branch, such as chronic illness. Though findings from chronic illness might be interesting, their relevance to dentistry is questionable given the differences in context. As such, it was decided to refocus the search.

To this end, a second search was carried out to identify and retrieve systematic reviews or meta-analyses that examine this issue. The search strategy was hence modified to include the following terms: systematic review, patient-centred, patient-centredness, interventions, and meta-analysis.

This is not a systematic review, as the purpose of this review was for the researcher to become familiar with the area rather than to offer a systematic analysis of two diverse sets (medical and dental) of the literature. The aim was instead to demonstrate whether there is a need to adopt a PCC approach in dentistry and to explore the work that supports such a view. During this review, the researcher read the abstracts of systematic reviews and then retrieved and scanned any articles that seemed relevant. If the article was relevant, it was

obtained for further assessment, which included consulting the references list and snowballing other relevant research. Therefore, the focus was on retrieving essential articles on the concept of PCC in medicine, nursing and dentistry through systematic reviews and meta-analyses, i.e. the highest quality source of evidence using the hierarchy of evidence (Evans, D., 2003, CEBM, 2009).

Appendix 2: Topic guide

- Which level do you generally practice at and why?

Core questions:

- What level of information provision and choice (from the hierarchy) do you find most useful and why?

Probes: why do you believe this level to be the most useful? What reasons make you prefer it to the other levels?

- What level of information provision and choice (from the hierarchy) do you find least useful in your practice and why?

Probes: why do you believe this level to be the least useful? What reasons make you not to prefer it compared to the other levels?

- From your experience, what level of information provision and choice (from the hierarchy) do most of your patients' prefer?

Probes: why do you think patients' prefer this level of information provision and choice? Is there one factor from your experience that is the one that mostly influence patients' preferences?

- How can we make the hierarchy suitable for dental setting?

Probes: any contextual factors that might hinder or ease the suitability of the hierarchy to dental setting?

Exit question:

- What are the possible modifications to the hierarchy that will make it more practical and applicable?

Probes: why do you suggest these modifications in particular? Why do you feel they are needed?

Closing the interview:

- Do you have any information you would like to add?
- Do you have any questions you would like to ask?

Appendix 3: Ethical approval for the semi-structured interviews study

Sumaiah Alrawiai
King's College London
Unit of Social and Behavioral Sciences
Dental Institute, Caldecot Road
Denmark Hill
London SE5 9RW

07 November 2014

Dear Sumaiah Alrawiai

BDM/14/15-7 Dentists' Perceptions of the Scrambler and Asimakopoulou (2014) Hierarchy of Patient-Centered Care

Review Outcome: Full Approval

Thank you for sending in the amendments/clarifications requested to the above project. I am pleased to inform you that these meet the requirements of the BDM RESC and therefore that full approval is now granted.

Please ensure that you follow all relevant guidance as laid out in the King's College London Guidelines on Good Practice in Academic Research (<http://www.kcl.ac.uk/college/policyzone/index.php?id=247>).

For your information ethical approval is granted until 07/11/2015. If you need approval beyond this you will need to apply for an extension to approval at least two weeks prior to this explaining why the extension is needed, (please note however that a full re-application will not be necessary unless the protocol has changed). You should also note that if your approval is for one year, you will not be sent a reminder when it is due to lapse.

Ethical approval is required to cover the duration of the research study, up to the conclusion of the research. The conclusion of the research is defined as the final date or event detailed in the study description section of your approved application form (usually the end of data collection when all work with human participants will have been completed), not the completion of data analysis or publication of the results.

For projects that only involve the further analysis of pre-existing data, approval must cover any period during which the researcher will be accessing or evaluating individual sensitive and/or unanonymised records.

Note that after the point at which ethical approval for your study is no longer required due to the study being complete (as per the above definitions), you will still need to ensure all research data/records management and storage procedures agreed to as part of your application are adhered to and carried out accordingly.

If you do not start the project within three months of this letter please contact the Research Ethics Office.

Should you wish to make a modification to the project or request an extension to approval you will need approval for this and should follow the guidance relating to modifying approved applications:

<http://www.kcl.ac.uk/innovation/research/support/ethics/applications/modifications.aspx>

Please would you also note that we may, for the purposes of audit, contact you from time to time to ascertain the status of your research.

If you have any query about any aspect of this ethical approval, please contact your panel/committee administrator in the first instance

(<http://www.kcl.ac.uk/innovation/research/support/ethics/contact.aspx>) We wish you every success with this work.

Yours sincerely,

Tom Billins, Senior Research Ethics Officer

For and on behalf of

Dr Blánaid Daly, Chair

Biomedical Sciences, Dentistry, Medicine and Natural and Mathematical
Sciences Research

Ethics Subcommittee (BDM RESC)

Cc. Koula Asimakopoulou

Appendix 4: Doctors' self-competence items (the original medical competence communication scale)- (Cegala et al., 1998)

I provided good explanations of the following to the patient:

1. The diagnosis of his or her medical problem
2. The causes of his or her medical problem
3. The treatment for his or her medical problems
4. The advantages and disadvantages of treatment options
5. The purpose of any tests that were needed
6. How prescribed medication will help his or her problem
7. How to take prescribed medication
8. The possible side effects of the medication
9. The long-term consequences of his or her medical problem I did a good

job of:

10. Reviewing, or repeating, important information for the patient
11. Making sure the patient understood my explanations
12. Making sure the patient understood my directions
13. Checking my understanding of information the patient provided
14. Encouraging the patient to ask questions
15. Asking the patient the right questions
16. Asking questions in a clear, understandable manner
17. Using open-ended questions
18. Using language the patient could understand
19. Being warm and friendly
20. Contributing to a trusting relationship
21. Showing the patient I cared about him or her
22. Making the patient feel relaxed or comfortable
23. Showing compassion
24. Being open and honest

Appendix 5: Information sheet for the validity and reliability study

INFORMATION SHEET FOR PARTICIPANTS

REC Reference Number: [LRS-15/16-2826]

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET



Patient-Dentist Communication: Validity of a Self-assessment Checklist for Dentists

Invitation Paragraph

We would like to invite you to participate in our research study on patient-dentist communication in dental settings, which forms part of my PhD.

This study aim to assess the validity of a checklist developed for dentists to use as a self-assessment tool to examine their patient-dentist communication. Most of the available tools in the literature were originally developed for family medicine, primary care and nursing fields. Since there are many differences in the context between dental and medical and nursing settings, a tool developed particularly for dentistry is needed. The need for such tool is amplified by the latest UK General Dental Council (GDC) standards for Dental Teams (GDC, 2013).

Participation is voluntary. There are no wrong or right answers - all we are interested in is your opinion. Please take the time to read the following information carefully and ask me if there is anything that is not clear.

What is the purpose of the study?

This study aim to assess the validity of a self-assessment checklist developed for dentists to help them measure their patient-dentist communication.

Why have I been invited to take part?

As a dental student in their third, fourth and fifth year, we would like your help in assessing the validity of a developed checklist. Knowing the common features of

a good consultation should put you in a good place to be able to assess the quality of a consultation is the skill we need in this study.

Do I have to take part?

Your participation is voluntary. *If you do decide to take part you will be given this information sheet to keep. If you decide to take part you are still free to withdraw at any time and without giving a reason up until the results have been submitted for publication. Completion of the questionnaire will be taken as a consent to participate.*

What will happen to me if I take part?

In this study we will ask you to watch a short video clip of a consultation and then to rate this consultation using two different checklists. There are no wrong or right answers, it's your opinions that we are seeking. If you agree to take part in the second part of the study you will be invited to watch a clip two to three weeks later and rate it using one checklist this time. There are no wrong or right answers, it's your opinions that we are seeking. Each session will not take longer than 20 minutes and if you decided you want you can withdraw anytime during either sessions and after, up until the 1st of Sep. 2016 in which we would have completed the analysis.

Incentives

A £10 Amazon voucher will be given at the end of the study to every participant who has completed session 1 and an additional £5 Amazon voucher will be given to you if you complete the second session.

What are the possible benefits and risks of taking part?

No risk is associated with participating in this study.

Will my taking part be kept confidential?

All data will be stored anonymously and we will ensure the confidentiality of all the information obtained. Participants will not be identifiable from their responses.

How is the project being funded?

The PhD student running this study has a Saudi Government Scholarship

What will happen to the results of the study?

This study is part of a PhD, so the results will be used as part of the thesis. Additionally the results will be presented at a conference and/or a seminar. They will also be published in a journal article. We will ensure the anonymity of your identity when presenting the results.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me using the following contact details:

Email: sumaiah.alrawiai@kcl.ac.uk

Telephone: +44 (0) 207 848 5145

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way or if you wish to make a complaint about the conduct of the study you can contact King's College London using the details below for further advice and information:

Koula Asimakopoulou, PhD, CPsychol, AFBPS, FHEA
Reader in Health Psychology
HCPC Registered Health Psychologist
Unit of Social and Behavioural Sciences
King's College London
Floor 18, Tower Wing
Guy's Hospital
London SE1 9RW
+44 (0) 207 848 5145 koula.asimakopoulou@kcl.ac.uk

Thank you for reading this information sheet and for considering taking part in this research.

Appendix 6: Amendments to ethical approval BDM/14/15-7 for the content validity assessment study

Sumaiah Alrawiai
King's College London
Unit of Social and Behavioral Sciences
Dental Institute
Caldecot Road
Denmark Hill
London SE5 9RW

14 March 2016

Dear Sumaiah Alrawiai

BDM/14/15-7 Dentists' Perceptions of the Scrambler and Asimakapoulou (2014) Hierarchy of Patient-Centered Care

Thank you for submitting a modification request form for the above study; I am writing to confirm approval of this. The modification is summarised below:

1. To send an email copy of the hierarchy linked tool.
2. To ask the participants to rate the technical quality of the tool.

If you have any questions regarding this application please contact the Research Ethics Office.

Yours sincerely,

Tom Billins, Senior Research Ethics Officer
For and on behalf of
Dr Blanaid Daly, Chair
Biomedical Sciences, Dentistry, Medicine and Natural and Mathematical Sciences Research Ethics Subcommittee (BDM RESC)

Appendix 7: Ethical approval for the validity and reliability assessment study

Research Ethics
Office

Franklin Wilkins Building
5.9 Waterloo Bridge Wing
Waterloo Road
London SE1 9NH
Telephone 020 7848 4020/4070/4077
rec@kcl.ac.uk



Sumaiah Alrawiai

7 June 2016

Dear Sumaiah

LRS-15/16-2826 - Patient-centred care: validity and reliability of a self-assessment tool for dentists

I am pleased to inform you that full approval for your project has been granted by the BDM Research Ethics Panel

- Ethical approval is granted for a period of **one year** from 7 June 2016 . You will not receive a reminder that your approval is about to lapse. It is your responsibility to apply for an extension prior to the project lapsing.
- You should report any untoward events or unforeseen ethical problems to the panel Chair, via the Research Ethics Office, within a week of occurrence. Information about the panel may be accessed at: <http://www.kcl.ac.uk/innovation/research/support/ethics/committees/ssh/rep/index.aspx>
- If you wish to change your project or request an extension of approval, please complete and submit a Modification Request to crec-lowrisk@kcl.ac.uk. Please quote your ethics reference number, found at the top of this letter, in all correspondence with the Research Ethics Office. Details of how to complete a modification request can be found at: <http://www.kcl.ac.uk/innovation/research/support/ethics/applications/modifications.aspx>
- All research should be conducted in accordance with the King's College London *Guidelines on Good Practice in Academic Research* available at: <http://www.kcl.ac.uk/college/policyzone/assets/files/research/good%20practice%20Sept%2009%20FINAL.pdf>

Please note that we may, for auditing purposes, contact you to ascertain the status of your research.

We wish you every success with your research.

Best wishes,

BDM Research Ethics Panel REP Reviewers